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# Editorial

The JIRSEA-UPM Special Issue May 2025 Vol. 23, Issue 1, is the second special collaboration between SEAAIR (South East Asia Association for Institutional Research and UPM (*Universiti Putra Malaysia*, Selangor, Malaysia). Regardless of this special issue collaboration, JIRSEA has maintained its stringent two-step review process of the Preliminary Review and the Double-Blind Review. In addition to the JIRSEA PR and DB Process, UPM has its own *Publication and Citation Unit* under the *Deputy Dean's Office (Research, Innovation and Funding) Faculty of Educational Studies* that meant that all papers undergo a triple reviews, resulting in 10% of papers being withdrawals due to relevance to JIRSEA's focus on Higher Education issues or Institutional Research and those that do not meet the "sound scientifically grounded" research requirements of JIRSEA. However, these papers are based on the UPM's Faculty of Educational Studies, some of the more current topics like cyberbullying, moral education, social use applications, counseling, in addition to the normal educational or Institutional research issues were covered. Together, these nineteen contributions chart a multifaceted landscape of higher-education research spanning measurement, motivation, technology, pedagogy, professional growth, sustainability, and leadership. They collectively underscore that enhancing student and faculty outcomes requires (1) rigorous diagnostic tools, (2) context-sensitive pedagogical and technological frameworks, and (3) structured support systems, whether through communities of practice, time-management resources, or leadership training, to foster thriving academic ecosystems. The core topical areas are:

a) **Measurement & Well-Being Instruments (3 papers) Highlight:** These studies focused on validating and refining psychometric tools for assessing well-being and resilience in higher-education contexts. Two papers confirmed the reliability and factorial structure of established scales, while a third reviewed recent literature to identify personal, social, and environmental determinants of faculty well-being. Together, they reinforce the importance of robust measurement before intervention design.
b) **Motivation, Engagement & Career Intentions (5 papers) Highlight:** This cluster examines what drives students' academic and career trajectories. One study identified distinct motivational profiles linked to postgraduate aspirations; two explored how digital and blended tools enhance engagement; another correlated employment-preparation activities with market competitiveness; and one probed the career-planning challenges of student-athletes. The collective message is that tailored support—whether technological, counseling, or structural—is key to sustaining motivation and preparedness.
c) **Technology Integration & Acceptance (3 papers) Highlight:** Grounded in models like TAM, TPACK, TPB, and bridging artificial-intelligence adoption, these works map the enablers and barriers to embedding digital tools in teaching and learning. Core findings stress the need for improved technical-pedagogical training, institutional support frameworks, and the incorporation of trust and enjoyment factors when introducing emerging technologies.
d) **Time Management & Academic Performance (1 paper) Highlight:** A quantitative investigation revealed that short-range planning and positive time attitudes boost academic outcomes, while stress undermines them. Time-management skills emerged as a stronger predictor of performance than stress levels, underscoring the value of targeted student support in planning and coping strategies.

e) **Pedagogical Approaches & Competence (3 papers) Highlight:** Focusing on classroom practice, these articles examine how instructors teach sociolinguistic competence, use Socratic dialogue to foster critical thinking, and blend teacher-centered with student-centered methods to instill values. They collectively advocate for adaptive, authentic, and dialogic pedagogies that align with learner needs and curricular frameworks.
f) **Communities of Practice & Doctoral Development (1 paper) Highlight:** A qualitative case study of doctoral learners showed that engagement in various communities of practice (both core and peripheral) accelerates the acquisition of research skills, methodological know-how, and professional enculturation, highlighting the role of mentorship and peer networks in doctoral success.
g) **Education for Sustainable Development (1 paper) Highlight:** Through a scoping review, one study distilled the dual imperatives of embedding sustainability competencies, like collaboration and problem solving, and adopting curricular and pedagogical strategies that prepare graduates for real-world environmental and societal challenges.
h) **Student Leadership & Volunteering (2 papers) Highlight:** Systematic reviews identified five core leadership competencies (communication, critical thinking, ICT proficiency, etc.) and demonstrated strong interconnections among participant readiness, needs assessment, and program planning in volunteer initiatives. Both streams point to the necessity of intentionally designed development programs to cultivate effective, engaged student leaders.

The key synopses of these nine papers are as follows:

- **Article 1 – Riyan Hidayat and Ahmad Fauzi Mohd Ayub,** both from *Universiti Putra Malaysia, Malaysia,* **Hilman Qudratuddarsi** of *Universitas Sulawesi Barat, Indonesia***,** and **Imratul Najwa Abdul Latif** of *UiTM Cawangan Selangor* used Rasch analysis to investigate PERMA-Profiler in Indonesian tertiary educational settings, including those in the language and mathematics education field. The findings showed that the PERMA profiler was suitable for measuring well-being in tertiary educational settings, indicating that the PERMA profiler instrument in the Indonesian context was valid and reliable, and showed high internal consistency, which showed a significant difference, as the mathematics education students were reported to feel happier than the language education students. However, there was no significant difference in the PERMA profiler based on the academic year level, as suggested by the one-way ANOVA analyses.
- **Article 2 – Nur Izzati Mat Zin, Zaida Nor Zainudin, Rose Manisah Sulong, and Ahmad Sarji Abdul Hamed,** all from the *Faculty of Educational Studies, Universiti Putra Malaysia* aimed to validate the Malay version of the Brief Resilience Scale (BRS) and Flourishing Scale (FS) measures of resilience and wellbeing in one of Malaysian higher education institute using Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA). The results showed that one factor on the FS (wellbeing) can explain 65.31% of the variances, while two factors on the BRS (resilience) can explain 66.93% of the variances. Six items on the resilience scale and eight on the well-being

scale were found to have factor loadings higher than 0.60. In contrast to the well-being scale, which has eight items in a single factor, the resilience scale has three items in the first factor and three items in the second. The reliability of the well-being and resilience scale was 0.923 and 0.757, respectively. All fit indices, Average Variance Extracted (AVE), and Composite Reliability (CR), which demonstrate convergent validity and reliability, fulfil the requirements. This study found that both scales were internally reliable in measuring Malaysian university undergraduate students' well-being and resilience.

- **Article 3 – Bushra Khan, Nor Aniza Ahmad, Siti Aishah Hassan and Maizura Yasin** all from the *Faculty of Educational Studies, Universiti Putra Malaysia, Malaysia* employs a causal comparative study design to explore the academic motivation profiles of bachelor's final semester students in public sector universities in Quetta, Pakistan using Self-Determination Theory (SDT) as a framework, This research identifies three distinct motivational profiles high, moderate, and low motivation through hierarchical and two-step cluster analyses that indicate the motivation profile of students predicts their intentions to pursue postgraduate studies.
- **Article 4 – SUN WENRUI** and **TAJULARIPIN SULAIMAN,** both from the *Faculty of Educational Studies, Universiti Putra Malaysia, Selangor, Malaysia***, SUZIELEEZ SYRENE ABDUL RAHIM** from the *Faculty of Education, Universiti Malaya, Malaysia,* research is framed around the Technology Acceptance Model (TAM). That identifies key factors influencing SPOC flipped classroom effectiveness, including these factors: self-efficacy, teacher behaviour, characteristics of instructional materials, cognitive usefulness, cognitive ease of use, attitude towards learning, and intention to learn. Findings indicate an active impact on efficiency in learning and that the research model aligns well with the study's purpose, suggesting avenues for enhancing postgraduate language learning within SPOC flipped classrooms.
- **Articles 5 – Ong Xin Ting, Engku Mardiah Engku Kamarudin, and Yusni Mohd Yusop,** from the *Faculty of Educational Studies, Universiti Putra Malaysia,* **Amelia Mohd Noor** of the *Faculty of Human Development, Universiti Pendidikan Sultan Idris***, Hazaila Hassan** of the *Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu* aimed to examine the relationships and influences of time management, including short-range planning, long-range planning, and time attitudes and stress on academic performance among undergraduate students through a quantitative-correlational research was carried out among university students in Universiti Putra Malaysia. The findings showed that short-range planning and time attitudes positively correlated with academic performance, while stress had a negative effect. Regression results indicated that time management was a stronger predictor than stress, accounting for 13.7% of the variance in academic performance. The study concludes that time management and stress significantly influence academic performance, with time management emerging as the stronger predictor, highlighting the need for resources and support services to help students manage their time and stress effectively.

- **Article 6 – Tai Zhang, Normala Ismail, Muhd Khaizer Omar, Abdullah Mat Rashid** all from the *Faculty of Educational Studies, Universiti Putra Malaysia* investigates the extent of ICT integration by TVET teachers, identifies key barriers, and highlights emerging best practices through a Systematic Literature Review (SLR) of 44 studies from the last decade (2015–2024), analyzed via the PRISMA framework. The findings reveal progress in ICT integration, with persistent challenges. Guided by TPACK, TPB, and BDT, this study emphasizes the importance of improving teachers' technological and pedagogical competencies, addressing digital literacy gaps, and implementing data-driven strategies. Recommendations include targeted teacher training, enhanced institutional support, and strategic frameworks tailored to vocational education needs to ensure sustainable ICT integration.
- **Article 7 – Nur Fatini Syakirah Ahmad Fairos, Sharifah Intan Sharina Syed-Abdullah,** all from the *Faculty of Educational Studies,* and **Zakiah Ponrahono** of the *Faculty of Forestry and Environment, Universiti Putra Malaysia, Serdang, Malaysia,* Scoping review explores students' perspectives toward ESD in HEIs, covering the role of ESD in preparing them for sustainability-related challenges in their future careers and personal lives, and suitable approaches for implementing ESD in higher education institutions. The scoping review analyzed 47 studies published between 2020 and 2024 using databases such as Scopus, Emerald, and Google Scholar. By employing thematic analysis, two themes were identified deductively, namely the importance of ESD and approaches for implementing ESD. The first theme refers to the importance of ESD, which emphasises fostering competencies like problem-solving and collaboration, students' awareness of ESD, and promoting a positive attitude and behaviour toward sustainability. The second theme highlights approaches such as curriculum integration, right pedagogies, and providing training to educators as key approaches to the effective implementation of ESD.
- **Article 8 – Jing YanXia and Kai Yan Wong** of the *Faculty of Education, Languages, Psychology and Music, SEGi University, Selangor Darul Ehsan, Malaysia***, Tajularipin Sulaiman** *of Universiti Putra Malaysia, UPM Serdang, Selangor, Malaysia***,** and **Chen YaYun** of *Yantai Nanshan University, Nanshan Middle Road, Longkou, Yantai, Shandong, China* seeks to ascertain how students view and make use of the digital tools now available for higher education learning materials by documenting the distinct experiences of students, illuminating how they view digital tools and how they either help or impede their engagement in the learning process. Three (3) themes surfaced from the interview findings: tools for social interaction, collaboration, and communication; digital tools foster improved communication despite their limitations, and using digital tools to increase student involvement in higher education. Accordingly, the study found that by facilitating quick communication, digital tools increase student involvement in higher education.

- **Article 9 – Mohd Hakim Hafiz** and **Fazilah Razali** of *Faculty of Educational Studies, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia,* aimed to examine the level of learning attitudes when studying in blended learning by investigating the relationship between students' technological use and their learning preferences with learning attitudes in blended learning among diploma students through a quantitative study focusing on 144 students identifying their characteristics in blended learning. The survey results reveal mixed differences between students' learning preferences and their use of technology in blended learning towards their learning attitudes. A balanced delivery of online and traditional face-to-face learning platforms must be employed to ensure effectiveness in meeting the objectives of any lesson.
- **Article 10 – Siti Nadhirah Abd Rahman** from *Universiti Putra Malaysia* explores how pre-degree ESL instructors in Malaysian universities navigate the teaching of sociolinguistic competence in alignment with the CEFR. It focuses on their beliefs about teaching sociolinguistic competence, their acceptance of the CEFR, and how they align their classroom practices with the framework. The findings reveal that instructors generally hold positive views about both sociolinguistic competence and the CEFR, although some concerns remain, particularly regarding the lack of awareness and practical guidance. Instructors reported using meaningful and authentic materials, being mindful of students' backgrounds and needs, and allowing flexibility in classroom interactions.
- **Article 11 – Norshafizah Hanafi** of *Universiti Utara Malaysia, UUM Kuala Lumpur, Malaysia,* **Bidayatul Akmal Mustafa Kamil and Marhaiza Ibrahim,** both from *Universiti Utara Malaysia, UUM Sintok, Kedah, Malaysia,* and **Siti Aishah Hassan** of *Universiti Putra Malaysia, UPM Serdang, Selangor, Malaysia,* examine the process by which Socratic dialogue fosters critical thinking among students in the course of BPME6093 Entrepreneurial Development at Universiti Utara Malaysia Kuala Lumpur Campus. Findings suggest that the iterative process of asking and answering questions in a structured manner enables students to develop a deeper understanding of entrepreneurial concepts and fosters a mindset conducive to innovation and problem-solving.
- **Article 12 – Aida Hafitah Mohd Tahir[1], Mohd Mursyid Arshad[3*], Nur Aira Abd Rahim** all from the *Faculty of Educational Studies, Universiti Putra Malaysia***, Abdul Lateef Krauss** of the *Department of Human Development and Family Science, University of Missouri***, and Norzaini Azman** of the *Faculty of Education, Universiti Kebangsaan Malaysia,* explore the level of LPP of doctoral students in CoP to explore how CoP facilitates the development of knowledge and skills towards the academic profession and doctoral students' participation in doctoral practices within various learning contexts and their mode of engagement using a qualitative exploratory case study research design and interviewed ten doctoral students that met the set criteria via snowball sampling technique. The findings suggest that students' participation in various

types of CoPs, regardless of their mode of engagement in CoP, enables them to gather specific knowledge and skills that would be applicable in the academic profession. Another finding shows that through LPP, doctoral students seek guidance and assistance in overcoming challenges in their doctoral practices within CoPs. Drawing on the theoretical framework of CoP, LPP among doctoral students was described in the form of core, moderate, or non-participation. Doctoral practices within the CoPs include conducting lab experiments, learning research methodology and academic writing, among others.

- **Article 13 – Tao Yaxing, Suhaida Abdul Kadir, and Nurzatulshima Bte Kamarudin,** all from the *Faculty of Educational Studies, Universiti Putra Malaysia,* sought to examine the correlation between employment preparation and employment competitiveness of college students in China. This study identified a substantial correlation between employment preparation and employment competitiveness. It explored whether the employment preparation of college students is affected by demographic factors and provides insights to the government for formulating employment policies, and aids college students in improving their competitiveness in the labor market.
- **Article 14 – Rahimah Jamaluddin** of the *Faculty of Educational Studies, Universiti Putra Malaysia***,** explores the teaching methods employed by final-year pre-service teachers to inculcate family values. The results demonstrate that teachers employ a combination of teacher-centered and student-centered approaches when delivering content related to family values to their students. As inculcating family values is a subjective therefore applying hybrid teaching approaches might cater to diverse students' needs and learning styles. Additionally, this will successfully engage students and encourage a thorough comprehension of the subject so they can become responsible citizens in the future.
- **Article 15 – Nordahlia Umar Baki, Muhammad Fitri Mohd Yusof and Khairunnisa Mohd Pauzi,** all from the *Faculty of Educational Studies, Universiti Putra Malaysia,* investigate the career readiness of seven final-year student-athletes from Universiti Putra Malaysia (UPM), representing diverse sports disciplines and academic programs. Using Interpretive Phenomenological Analysis (IPA), seven major themes and 21 categories were derived from the three main research questions associate with strategy, impact of dual demands, and role of social support in their career preparation. Findings suggest that student-athletes often lack structured career planning, experience role conflict, and rely heavily on informal networks for guidance. The study highlights the need for integrated support frameworks, including career counselling, flexible academic programming, and targeted interventions.

- **Article 16 – Liangyong Xue, Jazihan Mahat, Norliza Ghazali,** and **Xiaoyu Shi,** all from *Universiti Putra Malaysia, UPM Serdang, Selangor, Malaysia,* examine the application of the Technology Acceptance Model (TAM) to artificial intelligence adoption in higher education (AIHEd). The findings validate TAM's robustness in the AIHEd context, with core relationships showing high significance rates. Trust emerges as a critical factor unique to Artificial Intelligence (AI) adoption, significantly influencing all core TAM constructs. The analysis reveals perceived enjoyment, subjective norm, and trust as the most frequently examined and significant antecedents. The study identifies methodological challenges, particularly in measuring the relationship between behavioral intention and actual usage. The geographic concentration in research suggests the need for more diverse regional perspectives. These findings contribute to both theory and practice by validating TAM's applicability to AI adoption while highlighting the need for theoretical extensions incorporating trust.
- **Article 17 – Zurina Ahmad Saidi** and **Mohd Faiq Abd Aziz,** *both from the Faculty of Educational Studies, Universiti Putra Malaysia, Selangor, Malaysia* aims to systematically review and synthesize leadership literature to identify five key competencies that empower effective student leadership in higher education institutions: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. A systematic literature review was conducted using the PRISMA framework to analyze 68 peer-reviewed articles from Web of Science and Scopus published over the past ten years. Thematic analysis revealed that these five competencies consistently enhance leadership effectiveness by promoting unity, strengthening team engagement, and fostering responsible student leadership. The findings emphasize the importance of embedding these competencies into student development programs to prepare student leaders for academic, organizational, and societal impact.
- **Article 18 – Zurina Ahmad Saidi, Alia Sarah Asri,** and **Mohd Faiq Abd Aziz** from the *Faculty of Educational Studies, Universiti Putra Malaysia, Selangor,* explore the relationships between participation, needs, readiness, and program planning in the context of university student volunteering programs. The results revealed strong and significant positive relationships between participation, needs, readiness, and program planning, suggesting that these factors are interconnected and critical for the effective implementation of student volunteering programs. These findings provide valuable insights for higher education institutions in designing improved volunteer initiatives that foster student engagement and preparedness, with future studies in Malaysia offering opportunities to explore the long-term effects of these interconnected factors.

- **Article 19 – Sijie Zhang, Mohd Faiq Abd Aziz, Alia Sarah Asri, and Zurina Ahmad Saidi,** all from *the Faculty of Educational Studies, Universiti Putra Malaysia, Selangor,* aim to review comprehensively and analyses the antecedents of well-being among female lecturers in higher education institutions through a comprehensive review of literatures from the past five years using relevant keywords from two major databases, Scopus and Google Scholar, identified determinants such as personal factors (e.g. work-family balance and occupational stress), social factors (e.g. empowerment opportunities) and environmental factors (institutional support and gender issues in the workplace). The findings suggest that addressing these factors not only improves individual job satisfaction and psychological health but also positively impacts educational outcomes, making it imperative for higher education institutions to prioritize well-being initiatives for female faculty members.

**JIRSEA Editor: Assoc. Prof. Teay Shawyun, Ph.D.**

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# PSYCHOMETRIC PROPERTIES OF THE PERMA-PROFILER FOR INDONESIAN COLLEGE STUDENTS: A RASCH MODELLING ANALYSIS

**Riyan Hidayat[1,2*], Hilman Qudratuddarsi[3], Ahmad Fauzi Mohd Ayub[1,2] and Imratul Najwa Abdul Latif[4]**

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## ABSTRACT

Previous studies on student wellbeing have revealed that mental illness and poor wellbeing are prevalent among college students. However, previous studies have highlighted the usefulness of the PERMA-Profiler a scientifically developed tool for measuring well-being across various contexts, sparking significant discussion and interest. This study used Rasch analysis to investigate PERMA-Profiler in Indonesian tertiary educational settings. A survey was conducted among 508 Indonesian higher education students, including those in the language and mathematics education field, selected by convenience sampling. The quantitative data were computed employing Rasch model analysis, utilizing WINSTEPS. We employed independent t-tests and analysis of variance tests (ANOVA) to examine some responses based on the academic year and field of study. The findings showed that the PERMA profiler was suitable for measuring well-being in tertiary educational settings. The findings of the Rasch model indicated that the PERMA profiler instrument in the Indonesian context was valid and reliable and showed high internal consistency. At the same time, the separation of person and item for the PERMA question showed a good range of instruments from various items and respondents. The results of the independent t-test of PERMA based on the field of study showed a significant difference as the mathematics education students were reported to feel happier than the language education students. However, there was no significant difference in the PERMA profiler based on the academic year level, as suggested by the one-way ANOVA analyses.

**Keywords:** higher education, PERMA, Rasch analysis, well-being

## 1. Introduction

Positive psychology is a relatively recent sub-discipline of psychology (van Zyl et al., 2024; Zagaria & Lombardi, 2024). Positive psychology is now being studied by numerous experts all around the world. It highlights the identification of variables that create strengths, help people develop, and promote psychological health as well as subjective contentment and happiness (Kun et al., 2017). Seligman (1999) indicated that positive psychology concentrates on developing an individual's most positive attributes. According to Seligman's new theory, a definition of well-being is the cultivation of one or more of these five factors: positive emotion, engagement, meaning, positive relationships, and achievement. Seligman's well-being theory has been studied in several different areas, including education and work settings (Lambert D'raven & Pasha-Zaidi, 2016).

Well-being has been the subject of a lot of empirical studies; it is the ability to accept life with a positive mental attitude and to judge life as satisfactory in a range of settings (Donaldson & Donaldson, 2020). Nevertheless, a variety of approaches have been employed to define and assess well-being to date. Although some scholars disagree on what defines well-being, this construct positively relates to academic achievement, productivity, and life satisfaction (Hidayat et al., 2020). Most contemporary psychological theories agree that happiness comprises both hedonic (as in life satisfaction, happiness, and the existence and lack of positive and negative affect) as well as eudemonic elements (indicators of healthy psychological functioning, including a sense of purpose or healthy interpersonal interactions) (Hamzah & Ismail, 2018).

However, past research on students' well-being found that students in higher education also have mental illness and weak well-being. Pitt et al. (2018) found that issues related to academic, personal, family-related, life balance, social support, and starting college were the primary factors, which could also be considered biological and psychological stressors. Furthermore, academic stress was, for example, shown to be prevalent in 51% of Indonesian higher education students. More recently, because of the COVID-19 pandemic effects, students experienced anxiety and emotional distress due to the lack of internet coverage sources. Farooq et al. (2020) also reported that the lack of college student participation is one of the significant issues for students during the pandemic. While there are some studies on hedonic components, little research has looked at the comprehensive model of well-being (aspects of hedonic and eudemonic). Accordingly, this study used Rasch analysis to investigate PERMA-Profiler in Indonesian tertiary educational settings.

Prior works have contributed to much debate and offered data on the validity of PERMA in various settings (e.g., Wammerl et al., 2019). The latest research, for example, revealed that psychological well-being could be moderated by ethnicity (Abdullahi et al., 2021). Previous studies have highlighted the inconsistency in research findings related to the PERMA framework (Elfida et al., 2021; Wibowo et al., 2021). By using the PERMA model, researchers can achieve a more organized and in-depth understanding of the factors that impact happiness in Indonesia. This approach helps to address the contradictions in prior studies, offering a more accurate perspective on how cultural and social factors influence individuals' well-being. Moreover, most past studies analyze proof of validity and reliability issues across diverse cultures using confirmatory factor analysis (CFA) and exploratory factor analysis (EFA). The use of Rasch modeling analysis in the present research will provide new knowledge to the existing literature regarding the validity of the PERMA profiler in the setting of tertiary education in Indonesia. Existing research indicates that comparison research using the PERMA profiler is a widely used indicator of subjective well-being. Nevertheless, the PERMA profiler's internal structure, the connection between sub-constructs, and content are crucial aspects of CFA and EFA. The current study focuses on the PERMA profiler's utilization of the Rasch measurement model to evaluate

divergent responses, including person-fit statistics and item-fit statistics, individual response and quality of instrument and considering solely on item-fit statistics (high correlation among questions (Bond & Fox, 2017). Therefore, the research question was: Is the PERMA profiler valid and reliable for Indonesian settings, and is there any significant difference in PERMA based on the field of study and academic year level?

## 2. Literature Review

Well-being holds many meanings and understandings. It can be measured objectively and subjectively. In this study, the focus is given on subjective well-being. This refers to 5 domains as proposed by Seligman (2018). Some synonymous words with subjective well-being based on theoretical definitions are happiness, thriving, flourishing, hedonic level, and life satisfaction. These words are often used interchangeably with subjective well-being. Past studies have proven that subjective well-being, joy, and positive traits are connected to different desired results such as lower divorce rates, enhanced academic performance, strengthened relationships and friendships, and improved physical health (Diener & Chan, 2011; Idris et al., 2023).

The philosophy of real happiness predates the well-being theory (Seligman, 2018). However, there seems to be no single metric that encompasses subjective well-being or what it implies to be happy. Some economists use the term 'subjective well-being' as a synonym for 'happiness', but happiness is a smaller construct in psychology than subjective well-being. Subjective well-being is connected to a higher feeling of meaning and purpose, which can be categorized into physical, psychic, social, and religious aspects (Sahrah & Yuniasanti, 2020). Subjective well-being is not a unified concept (Steptoe et al., 2015). It can be distinguished into cognitive well-being, affective well-being, and achievement well-being. Cognitive well-being is associated with being satisfied with living circumstances; affective well-being is linked to happy emotions; and achievement well-being refers to a better quality of life. More recently, there are three different categories of subjective well-being: evaluative well-being, also known as life satisfaction hedonic well-being, or feelings of joy, sadness, anger, tension, pain and eudemonic well-being (sense of goal and meaning in life) (Steptoe et al., 2015). Evaluative well-being is measured by asking people's feelings regarding the quality of their lives or how satisfied they are with their lives. At the same time, people who are asked to score their experience of numerous affect adjectives such as joyful, sad, and furious refer to hedonic health. The focus of eudemonic wellness is on the assessment of one's life meaning and purpose. The concept of subjective well-being is broad in the current literature however, the current research concentrates on eudemonic and hedonic wellness. Therefore, to measure eudemonic and hedonic wellness as presented by Seligman (2018), the positive emotion, engagement, relationships, meaning, and accomplishment (PERMA) framework (Butler & Kern, 2016) was used.

Positive emotion refers to affective well-being or good feelings. It is combined with a favorable assessment (Seligman, 2018). Hedonic feelings such as happiness, pleasure, and comfort are all examples of positive emotions. Positive emotions help to increase productivity, improve physical health, deepen bonds, and inspire optimism and hope for a better future. Conversely, the heightened level of hopelessness will hurt the academic performance of university undergraduates (Muin & Perveen, 2020). At the same time, positive emotions encourage broad thinking, which leads to adaptive behavior. These feelings are essential for happiness because they assist in increasing the positive aspects associated with past experiences and protect against destructive emotions or diseases in the future (Seligman et al., 2006). Numerous life outcomes have been demonstrated to benefit from experiencing good emotions, involving psychological stability, cognitive function, job productivity, and higher levels of abstraction. A profound psychological connection (being motivated, engaged, and immersed) to a specific activity, organization, or cause

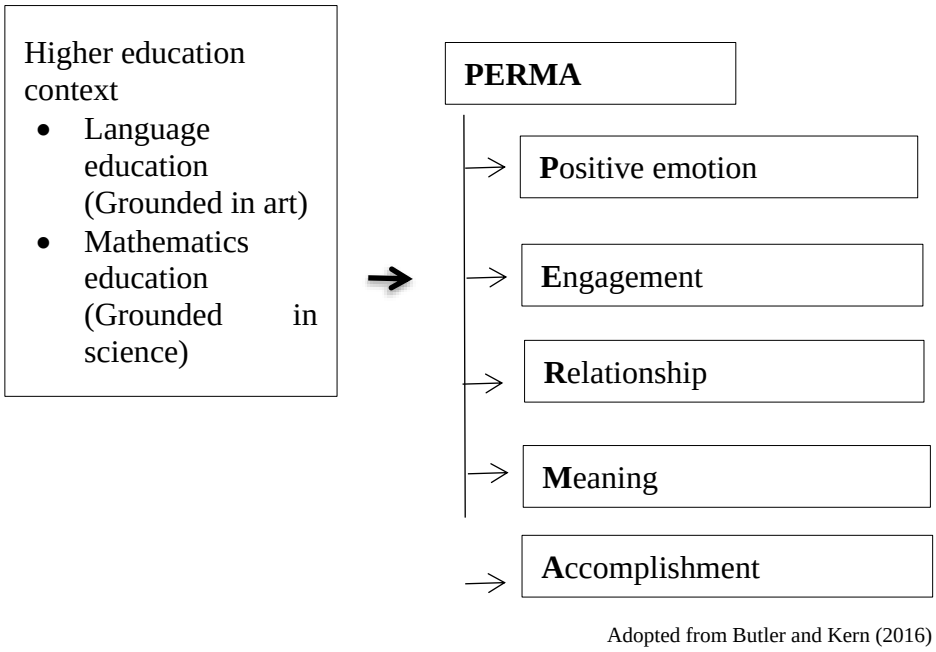
is engagement (Khaw & Kern, 2014). This degree of psychological engagement requires extreme attention, absorption, and focus. Deep engagement provides meaning, understanding, improved performance, and happy emotions. At the same time, developing and sustaining strong and helpful connections helps someone feel welcomed, loved, and supported at school (Stefa, 2018).

Positive relationships are defined as feelings of belonging to a group, experiencing the affection and support of friends and family, and being content with one's social network or a degree of compassion and creativity in social relationships. Relationships are the “expedient” of conveying and accepting thanks, compassion, love, and assistance, all of which are regarded as essential for boosting well-being (Giangrasso, 2021). In addition, meaning refers to something higher than our existence but has an intrinsic worth (social commitment). Khaw and Kern (2014) also include a sense of direction and purpose in life. Low levels of unpleasant psychological states are predicted by the presence of meaning in one’s life. Finally, accomplishment is the main intrinsic, defined as personal desire, determination, and personality diversity. Success achieved by applying one's abilities and efforts to definite and set goals is the route of accomplishment.

Seligman (2018) focuses on hedonic and eudemonic perspectives in his PERMA, which focuses on hedonic and eudemonic perspectives in his PERMA, emphasizing the emotional aspects as well as human self-development (flourish). It is believed that this model can help individuals achieve a fulfilling, happy, and even meaningful life. The PERMA wellness model helps one to understand these elements and what can be done to maximize each element to achieve a life full of happiness. The five phases of PERMA models are positive emotion, engagement, relationship, meaning, and accomplishment. Some studies show that pursuing each PERMA aspects PERMA aspect is also linked to well-being. For example, Goodman et al. (2018) discovered a high relationship between PERMA dimension and subjective well-being. Gander et al. (2016) also propose causal links between PERMA pursuit and well-being. Seligman (2018) argued that subjective well-being and PERMA are not mutually exclusive. PERMA consists of (at least some of) the components of well-being, and individuals who have one of the components have a nearly equal chance of having the others. According to Seligman (2018), each component must possess the following three characteristics to qualify as a component of well-being: it adds to happiness, it is pursued for its reason, and it is defined and assessed separately from the other factors.

In this study, we build on the PERMA framework proposed by Butler and Kern (2016) and propose a unified application of PERMA to higher education (grounded in science vs grounded in art). This study is based on a comprehensive review of relevant theory and previous research, ultimately focusing on one key dimension: the PERMA profiler. The tool provides a detailed perspective with five distinct sub-dimensions – positive emotions, engagement, relationships, meaning and achievement. Each sub-dimension plays a crucial role in shaping the complex landscape of PERMA in higher education and highlights the dynamic interplay between theoretical foundations and practical applications in educational settings. The PERMA framework provides a valuable system for understanding the happiness of Indonesia's culture and social environment, especially given the inconsistent discovery, which has been reported in many studies. Studies have shown that the components of the PERMA profiler are connected and create a network that reflects the complexity of happiness (Elfida et al., 2021; Wibowo et al., 2021). This interconnectedness suggests that improving one aspect of well-being can positively impact others, which is essential for designing interventions that aim to enhance overall life satisfaction. The PERMA-Profiler has proven to be a reliable and effective instrument for assessing the five core dimensions of well-being, making it valuable for both academic research and real-world applications across diverse populations. Previous studies have highlighted that perceived social support is a significant predictor of subjective well-being, including among Indonesian populations such as veterans and local communities (Setiasih & Jayanti, 2018).

In this study, we present a research framework informed by established theories and prior empirical findings (see Figure 1). This framework not only informs the direction of the current research but also lays the groundwork for future inquiries into well-being in educational contexts. Specifically, this study adopts Seligman's (2011) PERMA model as the conceptual foundation for evaluating student well-being in higher education. The five key dimensions—Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment—are central to this model and are measured using the PERMA-Profiler (Butler & Kern, 2016), a validated survey tool. The university setting serves as the contextual lens through which student well-being is explored, offering a comprehensive understanding of how these dimensions manifest in the higher education environment.




Adopted from Butler and Kern (2016)

**Figure 1: Research Framework**

## 3. Method

### 3.1 Design and Sample

We used a quantitative approach and carried out a cross-sectional study to examine the validity and reliability of the PERMA profiler in relation to higher education at several Indonesian universities. The quantitative study is positivist, which seeks equivalence and causal relationships between its constituent aspects to understand and anticipate what happens in the social environment (Bahari, 2010). Cross-sectional research assessed a collection of individuals at a specific point to represent the population's attitudes, beliefs, actions, or characteristics (Creswell, 2020). Our current study aims to validate the PERMA profiles in university students. To test the PERMA profiler, we used Wilson's four building blocks and aligned them with Rasch models for analysis, specifically the Many Facet Rasch model and the Rasch measurement model (Wilson, 2004). These models are well established in measurement development, as evidenced by their use in previous studies (Scalise et al., 2021).

In addition, the present study's population is the higher education setting in Indonesia. For a more representative sample, we used a stratified sampling approach based on the faculty. Recognizing the diversity of programs in educational institutions, we initially stratified the sample according

to the type of program, with a particular focus on science and language areas to better reflect the wider population. For this study, we selected two programs—language education and mathematics education—and then used convenience sampling to include all students in these areas. To gather data, we distributed an online survey via Google Forms, targeting members of relevant WhatsApp groups linked to these programs. We invited participants to complete the survey to collect data from a specific group of students. This approach enhanced the representativeness of the sample and strengthened the overall foundation of the research.

Prior to completing the online questionnaires, a written consent form was submitted to the Human Research Ethics Committee of the University. The committee then forwarded the consent form, along with its confirmation letter, to the testing locations. In the first section, we obtained biographical information from participants, including gender, subject, and academic year level. A total of 508 Indonesian students (between 18 and 22 years of age) enrolled in tertiary education were included in this survey. The population comprised 420 female participants (82.7%) and 88 male participants (17.3%). There were 241 participants (47.7%) as language education students, and the rest, 267 (52.6%) as mathematics education students. The percentage of respondents from the first, second, and third years were 131 (26.0%), 213 (42.0%) and 164 (32.0%), respectively. The demographics of the sample are shown in Table 1.

**Table 1: The demographic profile (N = 508)**

| Demographic | Sample | Percentage (%) |
|---|---|---|
| *Gender* | | |
| Male | 88 | 17.3 |
| Female | 420 | 82.7 |
| *Field of study* | | |
| Language education | 241 | 47.4 |
| Mathematics education | 267 | 52.6 |
| *Academic year level* | | |
| Year one | 131 | 26.0 |
| Year two | 213 | 42.0 |
| Year three | 164 | 32.0 |

### 3.2 Measures

Subjective well-being was evaluated using the PERMA framework, as outlined by Butler and Kern (2016). This framework served as the foundation for selecting the specific construct measures for our study. We reviewed relevant literature to identify and refine the construct measures of subjective well-being, ensuring they were consistent with well-established theoretical models. These measures were subsequently incorporated into the study's instrumentation. To ensure the accuracy of the translation of the original questionnaire into the target language, we employed the back-translation method. This method involves translating the questionnaire into the target language, followed by an independent translation back into the original language. Any discrepancies between the original and back-translated versions were carefully reviewed by our team and resolved to maintain the integrity and clarity of the items. Additionally, we engaged independent language experts to oversee the translation process, ensuring that the translated questionnaire accurately conveyed the intended meaning and was culturally appropriate for the target population. This careful and rigorous process of translation provided confidence in the reliability and validity of the measures used in our study. The PERMA scale consists of 15 questions scored on a 10-point Likert scale ranging from 1 (not at all) to 10 (always). In addition, Table 2 shows the AVE, CR, and Cronbach's alpha scores of the PERMA profiler.

**Table 2: The measurement model's discriminant validity**

| Dimension | Sub-dimension | Overall α | α | CR | AVE |
|---|---|---|---|---|---|
| PERMA Profiler | Positive emotion | .918 | .837 | .846 | .650 |
| | Engagement | | .713 | .725 | .500 |
| | Relationship | | .802 | .805 | .580 |
| | Meaning | | .893 | .895 | .739 |
| | Achievement | | .864 | .866 | .686 |

As shown in Table 2, internal consistency scores between α = .713 and α = .893 were obtained for the scale's PERMA profiler, which had excellent Cronbach alpha coefficients. Each dimension demonstrated good internal consistency, as shown by the AVE values, which ranged from .500 to .602 and were all over .500. Finally, the PERMA profile's composite reliability varied from .725 to .895, demonstrating internal solid consistency as well. Moreover, the factors for all five PERMA sub-components varied from .600 to .930. The factors loading values were more significant than the desired level of .500. The correlations between the dimensions are shown in Table 3. All dimensions were statistically significant ($p < 0.05$).

**Table 3: Intercorrelations between Sub-dimensions**

| No | Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Positive emotion | (.806) | | | | |
| 2 | Engagement | .605 | (.707) | | | |
| 3 | Relationship | .715 | .489 | (.761) | | |
| 4 | Meaning | .694 | .570 | .681 | (.860) | |
| 5 | Accomplishment | .672 | .566 | .634 | .825 | (.830) |

Table 3 shows that the highest link was found between meaning and accomplishment (r = .825), while the lowest was found between engagement and relationship (r = .489). Engagement (r = .605), relationship (r = .715), meaning (r = .694) and accomplishment (r = .672) indicated a significant relationship with positive emotion. At the same time, meaning (r = .570) and accomplishment (r = .566) showed a significant relationship with engagement. Finally, meaning (r = .681) and accomplishment (r = .634) also significantly correlated with the relationship. Moreover, the square roots of AVE for each dimension were larger than the associations shown above or to their right, indicating that the PERMA profiler had discriminant validity. However, to gain a better understanding of the pattern for each item, the detailed results are presented in the following section.

### 3.3 Analysis of Data

The data analysis for this investigation was done in stages. The quantitative data were analyzed using Rasch analysis, utilizing the WINSTEPS. We decided to pool data from all samples rather than process each group separately, even though each group may have different characteristics. This approach was chosen because all participants have one thing in common – they are higher education students. By combining the data, we aimed to gain a broader, more unified view, while acknowledging that, despite some differences, overall commonalities as students in higher education justified bringing the data together for analysis. This approach helps simplify the analysis and improves the overall applicability of the findings to the broader population of higher education students. Rasch analysis was performed to check for reliability, separation, fit statistics, unidimensionality, and item bias. WINSTEPS version 3.73 (Linacre, 2009) was used to measure

the quality of the instrument before analyzing student well-being. Another reported reliability measure was the Cronbach's alpha coefficient score.

The Rasch model is part of the item response theory (IRT), whose analysis is based on item difficulty and person ability. The proponents of the Rasch model measurement are two theorems: 1) more capable, more capable, and has a higher probability of responding correctly to all the items provided, 2) a more accessible item is more likely to be answered correctly by all people (Sumintono & Widhiarso, 2015). Regardless of its simple and easy-to-use model that requires fewer assumptions and parameters than other IRT models, the Rasch model can provide objective and unidimensional measures to validate instruments (Bond & Fox, 2017).

The current study additionally emphasizes the separation of the questionnaire, the evaluation of the PERMA instrument's ability to differentiate between "person skills" in terms of the latent trait, and the extent to which the items are used to define both the simple and complex items. A more significant separation elucidates the possibility of respondents selecting appropriate answers for each PERMA item. Hence, it is vital to note that the spread should be a minimum of three groups. At the same time, unidimensionality explains how much a form of the instrument can explain the score as proof of construct validation. This information is vital because it helps to identify the measured dimension or domain and relates to the quality of such an instrument. The evaluation of item fit statistics is evidence of construct validity. The accepted score of mean square (MNSQ), tolerated Z-Standard (ZSTD) and Correlation Points (Pt Mean Corr) based on Boone and Noltemeyer (2017) are as follows: (a) the value of tolerated infit and outfit Z-Standard (ZSTD ): -2.0 <ZSTD <+2.0 (b) the value of accepted Correlation Points (Pt Mean Corr): .4 <Pt Measure Right <.85 (c) the value of accepted infit and outfit mean square (MNSQ): .5 <MNSQ <1.5.

We utilized independent t-tests and analysis of variance (ANOVA) comparisons to investigate responses based on the academic year level and field of study. We hypothesized that the academic year level and the chosen field of study might significantly influence how participants engaged with the PERMA Profiler, especially considering the potential impact of the COVID-19 pandemic on the well-being of university students from diverse backgrounds. Before conducting the one-way ANOVA test, we diligently examined the assumptions required for ANOVA.

## 4. Results

### 4.1 Instrument Validity and Reliability

The instrument's reliability and measurement properties are summarized in Table 4. Person reliability for the instrument was found to be .870, and item reliability was notably high at 0.92, significantly exceeding the minimum acceptable threshold of 0.65. These robust reliability scores indicate the stability of students' responses and the consistency of item measurements within the instrument, underscoring its reliability.

Furthermore, the Cronbach's alpha coefficient, another internal consistency measure, was calculated and yielded a high value of .910. This suggests a high level of internal consistency for the PERMA instrument in the Indonesian context, reinforcing its reliability for measuring well-being.

Table 4 also provides insights into the questionnaire's separation properties, assessing the instrument's ability to differentiate between individuals with varying levels of the measured latent trait. For the PERMA questionnaire, the separation values were 2.55 for each person and 3.33 for each item, indicating a good spread of items and respondents. As suggested by Sumintono and Widhiarso (2015), these separation scores can be used to estimate the number of distinct groups

the instrument can differentiate. Applying the formula H (separation) = {(4 x separation) + 1}/3, we obtained values of 3.73 (indicating the instrument's ability to distinguish 4 groups) for persons and 4.77 (indicating the instrument's ability to distinguish 5 groups) for items.

Additionally, Table 4 presents outfit mean-square statistics for both persons and items. These values were close to 1.0, supported by a significant chi-square score ($p$ = .000). This alignment between the facts and the model demonstrated that the instrument's measurement properties were consistent with the Rasch model's expectations. In summary, the results in Table 4 affirm the instrument's high reliability, strong internal consistency, and ability to effectively differentiate between individuals' well-being levels, making it a reliable tool for measuring well-being in the Indonesian context.

**Table 4: Validity and reliability of an instrument**

| | Person | Item |
|---|---|---|
| Separation | 2.55 | 3.33 |
| Reliability | .87 | .92 |
| Cronbach's alpha | .91 | |
| Chi-square ($\chi^2$) | 19291.01*** | |
| Outfit Mean-Square | | |
| Mean | 1.00 | 1.00 |
| Standard Deviation | 0.67 | 0.29 |

### 4.2 Unidimensionality

The explained variance of PERMA in Indonesian settings exceeded the minimum value of 40%, meaning that the questionnaire can be a valid instrument to measure PERMA constructs. Table 5 indicates the explained variance of the PERMA profiler for the Indonesian context.

**Table 5: Unidimensionality of the PERMA Profiler**

| Variance in Eigenvalue units | Eig | Obs (%) | Exp (%) |
|---|---|---|---|
| Raw variance explained by measures | 12.28 | 46.0% | 46.3% |
| Raw Variance explained by persons | 6.1 | 22.1% | 22.3% |
| Raw Variance explained by items | 6.6 | 23.9% | 24.0% |
| Raw unexplained variance (total) | 15.0 | 68.2% | 68.2% |

The other result to note from the study was the unexplained variance in the first construct, which stated the importance of checking the second construct if both the eigenvalues for the first contrast were more than 2 and the unexplained variance in the first contrast was more than 15%. The eigenvalue of the first unexplained variance of PERMA was 2.6. In comparison, its unexplained variance in the first contrast was 9.3%. Referring to the result, there was no need to evaluate the second construct due to the fulfillment of the unexplained variance in the first contrast.

### 4.3 Item Fit Statistics

An analysis of the item fit statistics demonstrated the validity of the construct. Table 6 indicates the value of tolerated infit and outfit Z-Standard (ZSTD), the value of accepted infit and outfit mean square (MNSQ), and the value of accepted Correlation Points (Pt Mean Corr) for the PERMA profiler.

**Table 6: Goodness of model fit of the PERMA Profiler**

| Item | Infit | | Outfit | | Pt Mea Corr |
|---|---|---|---|---|---|
| | MNSQ | ZSTD | MNSQ | ZSTD | |
| $P_1$ | 0.70 | -4.4* | 0.70 | -4.5* | .68 |
| $P_2$ | 0.85 | -2.0 | 0.85 | -2.0 | .63 |
| $P_3$ | 0.94 | -0.7 | 1.13 | 1.7 | .60 |
| $E_1$ | 0.97 | -0.3 | 0.98 | -0.2 | .58 |
| $E_2$ | 1.06 | 0.8 | 1.07 | 0.9 | .54 |
| $E_3$ | 1.73* | 8.0* | 1.67 | 7.7* | .45 |
| $R_1$ | 1.23 | 2.9* | 1.26 | 3.3* | .60 |
| $R_2$ | 1.28 | 3.4* | 1.16 | 2.1* | .62 |
| $R_3$ | 1.53 | 6.2* | 1.46 | 5.7* | .59 |
| $M_1$ | 0.69 | -4.5* | 0.66 | -5.2* | .69 |
| $M_2$ | 0.82 | -2.5* | 0.79 | -2.9* | .66 |
| $M_3$ | 0.90 | -1.3 | 0.84 | -2.3* | .68 |
| $A_1$ | 0.61 | -6.1* | 0.63 | 5.8* | .71 |
| $A_2$ | 0.71 | -4.3* | 0.79 | -3.1 | .66 |
| $A_3$ | 0.95 | -0.6 | 0.97 | -0.3 | .56 |
| Mean | 1.00 | -0.4 | 1.00 | -0.3 | |
| *SD* | 0.31 | 3.9 | 0.29 | 3.8 | |

**Note:** * item with a fit value outside acceptable score

Based on the result in Table 6, the items all met the requirements, meaning that all items were valid for measuring PERMA in the Indonesian higher education context. However, in this context, a few items revealed a large ZSTD score for items, such as items P1, E3, R1, R2, R3, M1, M2, A1, and A2. The items were not revised or eliminated from the instrument because of their acceptable infit MNSQ, outfit MNSQ, and Point Measure Correlation. The items can still be retained for measurement. Therefore, the PERMA Profiler instrument can be used for Indonesian settings because it fits the Rasch measurement model.

### 4.4 Rating Scale

PERMA Profiler had 10 Likert scales to express students' subjective well-being. The appropriateness of using the number of options was evaluated by conducting a Rasch rating scale analysis to comprehend and differentiate between the various categories (Adams et al., 2022). This analysis was useful in evaluating the precise number of Likert-scale items to be used, as it would be possible to modify the scale into a smaller or larger range (Ishak et al., 2018). The analysis, as shown in Figure 2, was not as we expected. We can observe the unexpected results easily in the figure where all scales were bound together with a low Rasch Andrisch threshold and did not meet a minimum of 1.4 standard scores.

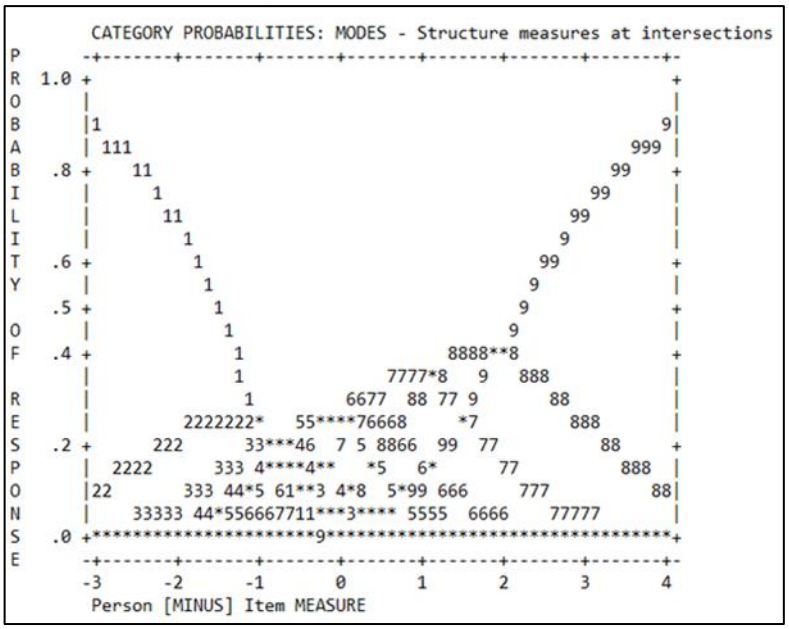



**Figure 2: Rasch rating scale analysis**

### 4.5 Test and Item Information Function

While item information function (IIF) analysis is beneficial to figure out the strength of an item to express the latent traits obtained and the deliberation of selected items, test information function (TIF) is the sum of IIF, which is presented for whole items. It shows how much information the test instrument provides is generally given to participants with specific abilities. Item information function for 15 items showed a similar trend with a curve peak of 3.2. Based on Zięba (2013), this is the maximum information each item gives. Based on Figure 3, this test provides maximum information if given to participants with abilities of around -.5 with a maximum value of 44.

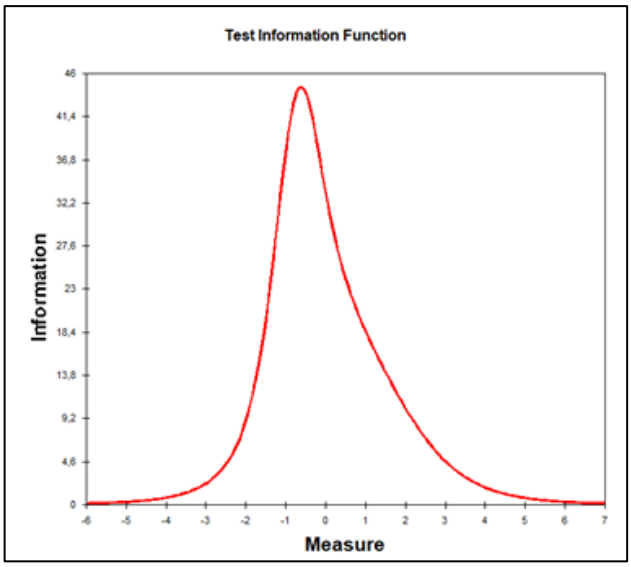



**Figure 3: Test information function**

### 4.6 PERMA-Profiler in Indonesia

The results of analyzing PERMA for Indonesian students after converting raw scores into logits are depicted in Figure 1. In general, it was revealed that the person's mean measure (logit) value was +1.41 logit (SD = .970), showing that the students feel happy, and their scores are laid out along the Wright map as provided in Figure 4. The highest logit score was 5.86, while the lowest score was -.970. The mean score of the item's mean measure (logit) was .000, while the standard deviation was .160. This shows that estimates of item difficulty on the logit scale vary widely.

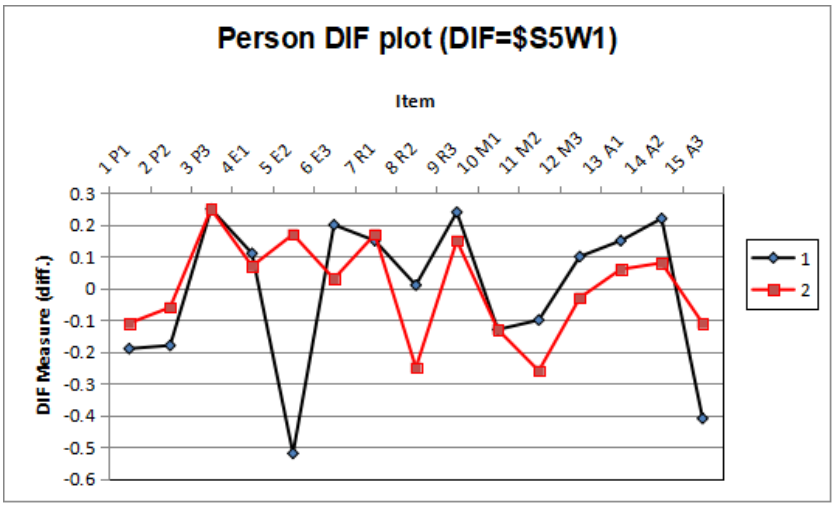



**Figure 4: The mean measure (logit) value of person and item**

### 4.7 Differences in PERMA based on Field of Studies

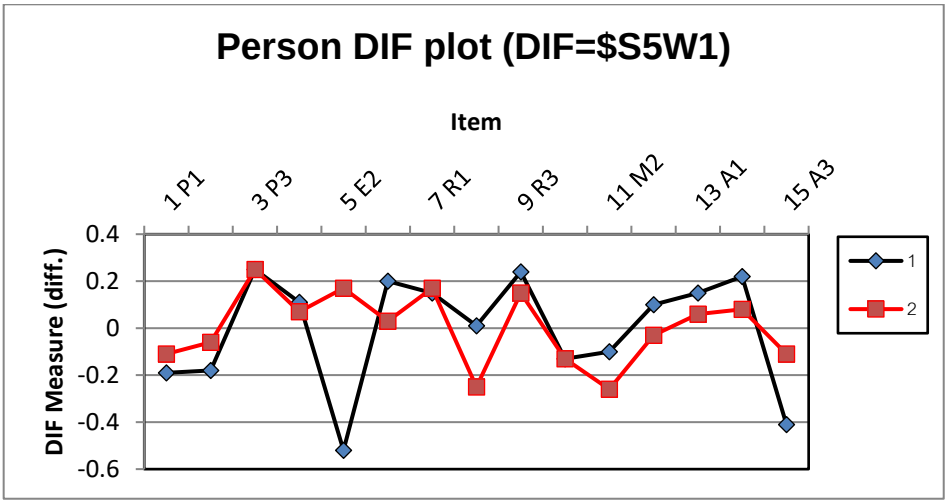
The Kolmogorov-Smirnov normal test was used for statistical analysis to explain the results. The significance levels of PERMA for language and mathematics education were more than 0.001, showing that the PERMA value distribution was normal. Therefore, to assess the language education and mathematics education groups, an independent t-test was employed. The independent t-test was conducted on the data obtained from the samples recognized by the Rasch analysis. The findings of the independent t-test of the field of study in PERMA are shown in Table 7.

**Table 7: Independent t-test results**

| Dependent Variable | Field of study | N | Degree of Freedom | Mean | Standard Deviation | *t* | Sig |
|---|---|---|---|---|---|---|---|
| PERMA | Language | 229 | 479 | 1.170 | .932 | -5.232 | .000 |
| | Mathematics | 252 | | 1.623 | .963 | | |

The results of the independent t-test of PERMA based on the field of study are shown in Table 7. The independent t-test analysis revealed a significant difference in PERMA across groups, $t = -5.232$, $df=479$, $p < 0.05$. The null hypothesis was rejected because mathematics education undergraduates had higher levels of PERMA than language education undergraduates. After depicting the results of 15 PERMA questionnaires, the PERMA analysis was conducted using the Rasch Model. The results of its Differential Item Functioning (DIF) analysis, as shown in Figure 5, show that some items have significant differences in PERMA score after reviewing their significance level of Chi-square. The items that showed significant results were item E2 (How

enthusiastic and interested are you in things?), item E3 (How frequently do you become engaged in what you're doing and forget the time?), item R2 (How much have you felt loved lately?) and item A3 (How often do you succeed in achieving the significant objectives you set for yourself?). Based on the DIF analysis, language, and mathematics students scored differently in the four items. The result must be considered to review overall instrument validity and reliability.




**Notes:** 1) Language 2) Mathematics

**Figure 5. Differential Item Functioning (DIF) analysis of the field of the study**

### 4.8 Differences in PERMA based on Academic Year Level

The difference in PERMA between first-, second-, and third-year students was determined using one-way ANOVA analysis. The variance homogeneity test was conducted before the one-way ANOVA test using Levene's statistics of equality of error variances, with an F value of 1.423, df = 2, and a sig. of .242 ($p > .05$). The variances of the constructs were evenly distributed. This result showed that the one-way ANOVA might be used to determine the significant difference in the students' PERMA. The one-way ANOVA was conducted on the data obtained from the samples recognized by the Rasch analysis. The findings of the one-way ANOVA of the academic year level in PERMA are shown in Table 8.

**Table 8: One-way ANOVA results**

| Dependent Variable | Academic year | N | Mean | Standard Deviation | Sum of Squares | df | Mean Square | *F* | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| PERMA | Year 1 | 125 | 1.331 | .894 | 1.443 | 2 | .721 | .758 | .469 |
| | Year 2 | 204 | 1.465 | 1.022 | | | | | |
| | Year 3 | 152 | 1.392 | .974 | | | | | |

The results of the one-way ANOVA analyses of PERMA based on academic year level are shown in Table 8. For the PERMA, no significant univariate main effects for academic year level were found [$F= .758$, ($p = .469$, $p > .05$)]. Hence, the null hypothesis failed to be rejected because the level of PERMA across groups did not significantly differ. After contemplating the difference based on 15 items of PERMA, the following is the analysis for each item referring to Differential Item Functioning (DIF) as yielded by Rasch analysis. The findings were presented in Figure 6 by grounding the probability of the $\chi 2$ test, where the p-value should be lower than .05. There was no substantial difference among first, second, and third-year students as depicted by the one-way

ANOVA test. Based on DIF analysis, some items showing significant results were item P3 (What percentage of the time do you feel content in general?), E2 (How enthusiastic and interested are you generally about things?) and R2 (How much have you felt loved lately?). The three items revealed significantly different results of PERMA score, which needed to be considered to accept the PERMA-profiler for the Indonesian context.

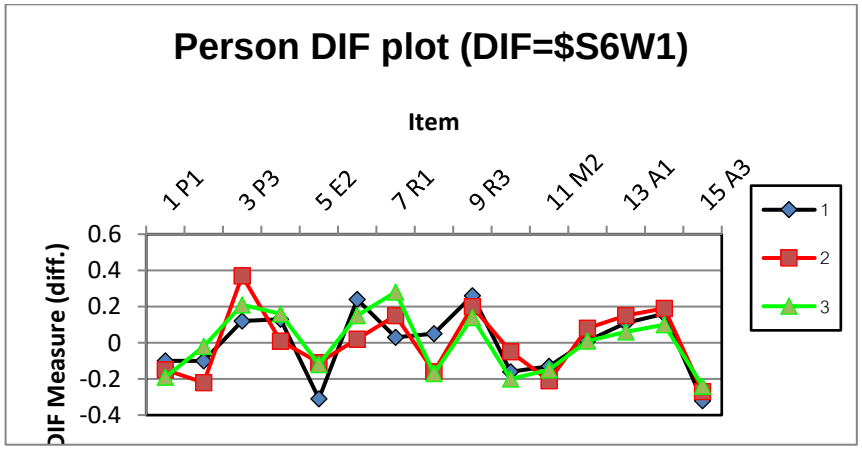



**Figure 6: Differential Item Functioning (DIF) analysis of academic year level**

## 5. Discussion

The work aimed to test Seligman's (2018) well-being theory at the tertiary educational level in Indonesian settings employing Rasch analysis. In general, the results of this study suggest that the PERMA Profiler was able to locate itself in a variety of cultural contexts, including Indonesia. As such, this indicates that the Indonesian form of this tool is a valid and reliable measure of well-being. Corresponding to our research question, the PERMA profiler instrument generally had an excellent Rasch model feature. Following Seligman's PERMA framework (Seligman, 2018), all five sub-components were unidimensional. The results of our study were completely consistent with those of earlier studies (e.g., Choi et al., 2019). We discovered that the more significant education level of populations that call for sophisticated opinions is the source of the similarities between the present study and past studies on the PERMA profiler. Moreover, detailed discussions are provided in the following sections.

It is concluded that PERMA instruments for the Indonesian settings can be utilized as a valid measurement. The current result was supported by prior investigations (Butler & Kern, 2016). PERMA comprises (at least some of) the components of happiness, and people who have one have a nearly equal likelihood of having other components. In addition, the findings of the Rasch model indicated that the PERMA profiler questionnaire in the Indonesian settings was reliable. The current findings appear to be in line with prior studies (e.g., Hidayat et al., 2020). Again, based on the criteria on MNSQ, ZSTD, and Pt Mean Corr, the evaluation of items fit statistics for PERMA profiler was in line with a previous study done by De Carvalho et al. (2023), who stated that the first-order five-component model of PERMA outperformed the others in terms of fit using CFA analysis. A few items in this study revealed great ZSTD values, but Alkhadim et al. (2021) emphasized that the execution of other requirements suggested that the high ZSTD score had been overlooked. Last but least, the results of the Rasch modelling also indicated a broad dispersion of measurements in question complexity over the logit scale. The results showing the happy feelings of Indonesian higher education students were also discovered in another research (e.g., Susanti &

Supradaniati, 2018). For example, Susanti and Supradaniati (2018) indicate that Indonesian students hold high autonomy, personality development, positive interaction, and great purpose in life.

Finally, the results of the independent t-test of PERMA based on the field of study showed a significant difference in which mathematics education students felt happier than language education students. The findings were in line with Hidayat et al. (2022), which indicated that the well-being of university students was affected by various backgrounds. Although the level of the PERMA profiler for mathematics education was higher than at of language education, the Rasch finding suggested interesting results for some items in a few sub-dimensions. For instance, it is noticeable that language students felt excited and interested in things more than mathematics students. Moreover, it is conceivable that they rated the question (item E2) among the highest items in the survey. Another item from the emotion construct also revealed a statistically significant difference in which mathematics students felt that they often lost track of time while doing something they enjoyed (item E3). It is interesting to note that both majors had different tendencies to rate items under the same construct. Based on the analysis, while mathematics students felt that they had been feeling loved (item R1), language students could handle their responsibilities (item A3).

However, there was no significant difference based on academic year level on the PERMA profiler. This output was in line with Rasch's modeling analysis. Based on DIF (analysis by item), however, the first and second-year students showed significant differences in items P3 (In general, to what extent do you feel contented?), E2 (How enthusiastic and interested are you generally about things?) and R2 (How much have you felt loved lately?). First-year students rated the three items with higher scores than other student groups. While first-year students rated items P3 and E2 with higher scales than second-year students, they rated a lower score on item R2. The following provided results of comparing the first-year, second year, and third-year students in the sub-dimension of relationship. The only item showing a significant difference was the second item of relationship construct, where the third-year mathematics and language students were asked if they felt loved. Lastly, it was found that the second year and third-year students had shown a significant difference on items P1 and P2 at positive item construct. Overall, the current findings did not support the previous research (Bewick et al., 2010), which revealed that once students begin university, there is a larger demand for their well-being. One possible explanation for this finding was that all students faced the same Covid situation, which forced them to adjust to the new teaching environment.

However, cultural influences play a crucial role in shaping how individuals respond to the PERMA-Profiler, as their perceptions and expressions of well-being are deeply rooted in societal norms, values, and beliefs. In collectivist cultures—common in many Asian societies—well-being is often linked to maintaining social cohesion, strong community bonds, and fulfilling family obligations. Consequently, respondents from these backgrounds may give higher importance to the "Relationships" aspect of PERMA, while potentially downplaying "Accomplishment" or "Positive Emotion" if these are viewed as individualistic or culturally inappropriate to emphasize. Moreover, variations in emotional expression and communication norms across cultures can impact how people understand and answer items on the PERMA-Profiler. For example, cultures that value emotional restraint might result in individuals reporting lower levels of positive emotions, despite experiencing them. In addition, subtle differences in language and the translation of questionnaire items may further affect comprehension and response accuracy, underscoring the need for cultural sensitivity in the interpretation and application of well-being assessments.

In conclusion, numerous empirical studies on happiness have been carried out. Interestingly, the most recent information has expanded the topic and offered proof of PERMA's applicability in various contexts. The purpose of this study was to use Rasch modeling analysis to explore PERMA at the higher educational level in the Indonesian setting. Overall, the PERMA profiler is fit to evaluate well-being in the Indonesian higher education context. The findings of the Rasch model indicated that the PERMA profiler tool was accurate and effective in the Indonesian scenario and showed high internal consistency. At the same time, the separation of person and item for PERMA questions elucidates the excellent range of instruments extending from various items and respondents. Regarding unidimensionality, the explained variance of PERMA in the Indonesian context exceeded the recommended score. Moreover, mathematics education students had higher levels of PERMA than those in language education, while the level of PERMA across the academic year level did not significantly differ. The implications of this study suggest that, from an educational viewpoint, well-being interventions should be customized to address the unique needs of students in various fields of study. For instance, students in language education may benefit from extra support that helps increase their sense of achievement and alleviates the stress associated with more subjective evaluations. Moreover, providing more opportunities for positive emotional experiences in language education could help narrow the well-being disparity between different disciplines. By recognizing these differences, educators can be better equipped to create a more supportive and balanced learning environment for all students.

## 6. Limitations and Future Studies

Some limitations of the current study deserve to be mentioned. First, although our results show that the PERMA profiler of the student is empirically reliable and valid in higher education, this is only true in the case of higher education for mathematics and language education field. Hence, the PERMA profiler instrument has the potential to be implemented for research and practice in this context only. A complete validation of the PERMA profiler instrument should be studied in the future, including a larger sample across field and academic year levels. Second, since the current findings suggest that mathematics education students had higher levels of PERMA than those in language education, it is striking that language students felt more excited and interested in some items in positive emotion and relationship sub-components than mathematics students. Upcoming research should be done in depth by conducting a mixed approach design and qualitative methods to examine further the viewpoints of higher education students under this phenomenon. Third, this study solely looked at the field of education and academic year-level variations in PERMA profiler use. Since the current findings indicated that various backgrounds could lead to different measurement results, future research could revise and remove the items by considering the current findings. In addition, one should be careful to select the sample background and the number of populations. The factor of gender, however, can have a substantial impact on PERMA profiler use. Future research could focus on understanding the pattern of the PERMA profiler based on the gender factor since this variable is sensitive toward emotion, engagement, and purpose in life. The COVID-19 pandemic likely had a considerable impact on students' well-being throughout the study period, and a more in-depth analysis is needed to explore how external factors, including remote learning, social isolation, and heightened stress due to the uncertainty of the situation, may have affected the outcomes. The shift to online education, for instance, could have introduced new challenges in terms of student engagement, motivation, and academic performance, potentially influencing their emotional and psychological well-being.

Again, it is recommended that future research adopt a longitudinal design to monitor fluctuations in student well-being over extended periods. Such an approach would allow researchers to capture

the evolving nature of well-being and better understand how prolonged exposure to academic pressures, varying levels of institutional support, and environmental changes influence students' mental and emotional states. Furthermore, future studies should delve deeper into the role of external factors—such as the enduring effects of the COVID-19 pandemic, financial stress, cultural expectations, and transitions between online and face-to-face learning environments. Examining these variables in greater detail can shed light on their complex interplay with the components of well-being as defined by the PERMA model. This enhanced understanding can guide the formulation of more tailored, inclusive, and sustainable well-being initiatives within higher education institutions, ultimately promoting student success and resilience in diverse educational contexts.

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# VALIDATION OF THE RESILIENCE & WELLBEING SCALE AMONG MALAYSIAN UNDERGRADUATE STUDENTS' CONTEXT

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## ABSTRACT

The study aimed to validate the Malay version of the Brief Resilience Scale (BRS) and Flourishing Scale (FS) measures of resilience and wellbeing in one of Malaysian higher education institute. A total of 340 undergraduate students from the Institute of Teacher Education (Malacca Campus) were involved in this study. Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) were employed in this investigation. Translation, back-to-back translation, pilot testing, and the validation of the BRS and FS were all part of the technique for translating and validating a questionnaire. The results showed that one factor on the FS (wellbeing) can explain 65.31% of the variances, while two factors on the BRS (resilience) can explain 66.93% of the variances. Six items on the resilience scale and eight on the well-being scale were found to have factor loadings higher than 0.60. In contrast to the well-being scale, which has eight items in a single factor, the resilience scale has three items in the first factor and three items in the second. The structure of the resilience scale consisted of three items in the first factor and three items in the second factor, while the structure of the wellbeing scale consisted of all eight items in one factor. The reliability of the well-being and resilience scale was 0.923 and 0.757, respectively. All fit indices, Average Variance Extracted (AVE), and Composite Reliability (CR), which demonstrate convergent validity and reliability, fulfil the requirements. Confirmatory Factor Analysis (CFA) demonstrates that both constructs are acceptable. This study found that both scales were internally reliable in measuring Malaysian university undergraduate students' well-being and resilience.

**Keywords**: Resilience, Wellbeing, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Higher Education.

## 1. Introduction

In higher education, the validation of resilience and well-being scales is essential for understanding and enhancing students' mental health and academic performance. Resilience, defined as the ability to recover from adversity, and psychological well-being, which encompasses life satisfaction, purpose, and emotional stability, play crucial roles in students' success and overall well-being (Masten, 2018; Diener et al., 2010). Valid and reliable measurement tools are necessary to assess these constructs accurately, particularly among university students who are preparing for demanding professional roles, such as future educators. Trainee teacher, in particular, face unique challenges in their training and careers, making it essential to assess their resilience and well-being using psychometrically instruments (Abubakar et al., 2022).

Institut Pendidikan Guru (IPG) in Malaysia is a recognized Higher Education Institution (HEI) under the Ministry of Education Malaysia (MOE), specializing in teacher training and professional development. Governed by the Malaysian Qualifications Framework (MQF) and accredited by the Malaysian Qualifications Agency (MQA), IPG ensures its programs meet national higher education standards (MOE, 2023). Offering Bachelor's Degrees in Education (Ijazah Sarjana Muda Perguruan - ISMP), postgraduate diplomas, and continuous professional development, IPG aligns with universities but remains distinct due to its exclusive focus on teacher education (MQA, 2022). Unlike universities operating under the Ministry of Higher Education (MOHE), IPG functions directly under MOE, emphasizing structured pathways to employment within Malaysia's public school system (MOE, 2021). Its role as a crucial component of Malaysia's higher education ecosystem ensures the production of highly qualified educators, reinforcing national education policies and workforce demands (Abdullah et al., 2020).

The Brief Resilience Scale (BRS), developed by Smith et al. (2008), is widely used to measure resilience by assessing an individual's ability to bounce back from stress. However, its applicability and psychometric properties may vary across cultural contexts. Similarly, the Flourishing Scale (FS), introduced by Diener et al. (2010), evaluates psychological well-being based on self-perceived success in relationships, self-esteem, and life purpose. While these scales have been validated in various populations, their suitability for Malaysian undergraduate students, particularly teacher candidates, remains unexplored. Given that resilience has been identified as a crucial factor in mitigating stress and improving emotional stability in future educators (Brett et al., 2022; Kotera et al., 2022), validating these scales within this demographic is necessary for ensuring their effectiveness in research and practice.

Research has demonstrated that teachers with high resilience experience lower stress, reduced emotional exhaustion, and greater job satisfaction (Kärner et al., 2021; Mansfield et al., 2016). Furthermore, resilience has been found to be positively correlated with psychological well-being and hope, while negatively associated with burnout among trainee teachers (Kara & Usta, 2022; Zin et al., 2023). Therefore, understanding the resilience and well-being of teacher candidates is crucial for developing targeted interventions aimed at enhancing their capacity to handle classroom challenges effectively. Studies suggest that resilience training programs in higher education can significantly improve coping mechanisms and mental health outcomes (Bore et al., 2016; Owen et al., 2021). Consequently, validated measures are essential for research, intervention design, and policy-making to foster resilience and well-being among university students.

Despite the growing recognition of resilience and psychological well-being as critical determinants of academic success and mental health among university students, the psychometric validity of widely used measures such as the Brief Resilience Scale (BRS) and the Flourishing Scale (FS) remains unexplored in the Malaysian higher education context, particularly among teacher candidates. Given that resilience serves as a protective factor against stress, burnout, and emotional exhaustion issues prevalent in the teaching profession—there is a pressing need to validate these scales to ensure their applicability and reliability for this demographic. Without rigorous validation, research and interventions aimed at enhancing students' well-being may rely on instruments that do not accurately capture their psychological resilience and flourishing within the unique socio-cultural and academic landscape of Malaysia. Furthermore, as the Institut Pendidikan Guru (IPG) plays a pivotal role in producing highly qualified educators aligned with national education policies, equipping teacher candidates with validated resilience and well-being assessments is essential for developing targeted support programs. Therefore, this study seeks to fill a critical research gap by examining the validity, reliability, and factor structure of the Malay versions of the BRS and FS, providing psychometrically sound tools for future research, intervention strategies, and policy formulation in Malaysian higher education.

Thus, the present study has the following key objectives:

1. To evaluate the validity and reliability of the Malay version of the Brief Resilience Scale within a higher education context.

2. To examine the psychometric properties (e.g., reliability, validity, and factor structure) of the Brief Resilience Scale in the Malaysian university student context.

3. To assess the validity and reliability of the Malay version of the Flourishing Scale within a higher education context.

4. To analyze the psychometric properties (e.g., reliability, validity, and factor structure) of the Flourishing Scale in the Malaysian university student context.

In conclusion, validating resilience and well-being measures among university students, especially those training to become teachers, is essential for accurately assessing their ability to handle the demands of the teaching profession. By establishing the psychometric properties of these scales, this study aims to contribute to the development of culturally appropriate tools for mental health research, intervention planning, and policy implementation in higher education.

## 2. Literature Review

The validation of resilience and well-being measures in higher education is crucial for understanding students' mental health and academic success. Resilience is the ability to recover from adversity, while psychological well-being encompasses life satisfaction, purpose, and emotional stability (Masten, 2018; Diener et al., 2010). The accurate assessment of these constructs is necessary, particularly among university students undergoing rigorous training for future professional roles. Teacher candidates, in particular, face significant stressors related to academic workload, teaching practicum, and career expectations, necessitating psychometrically sound measurement tools (Abubakar et al., 2022). This literature review critically examines resilience and well-being measurement, explores global and Malaysian perspectives, and identifies research gaps requiring further investigation.

### 2.1. Resilience in Higher Education Context

Resilience has been extensively studied in psychology and education as a key factor in mental health and academic persistence. Resilience among higher education students has become an increasingly relevant research topic, especially in light of the obstacles given by academic pressures, social dynamics, and external catastrophes. Defined as the ability to bounce back from stress or adversity, resilience is linked to lower psychological distress, better academic performance, and improved coping strategies (Masten, 2018). Studies have highlighted resilience as a protective factor against burnout, anxiety, and depression in university students (Brett et al., 2022; Kotera et al., 2022). In the context of higher education, resilience is typically linked to academic achievement and the ability to deal with the various challenges that students face. For example, Du et al. (2021) discovered that resilience training significantly improved health outcomes in students, implying that such treatments can improve students' coping skills and general well-being. Similarly, Trigueros et al. (2020) found that students with higher levels of resilience were better able to adjust to academic challenges and were less affected by stressors like exam pressure. This is consistent with the findings of Nandy et al. (2020), who discovered that resilience improves students' employability and workplace preparation, highlighting its significance beyond academic success.

The Brief Resilience Scale (BRS) by Smith et al. (2008) is one of the most widely used self-report instruments to assess resilience. The Brief Resilience Scale (BRS) has gained popularity in higher education research as a means of assessing students' resilience, particularly in the face of academic obstacles and stressors. While previous validations of the BRS in various cultural settings demonstrate its reliability and validity, its applicability to Malaysian students, particularly teacher candidates, remains unexplored. The BRS was originally designed to assess the ability to recover from stress and adversity, with a unidimensional structure based on exploratory factor analysis of varied samples (Fung, 2020). The BRS is a simple six-item questionnaire that measures a person's ability to recover from stress and adversity. Research relating resilience to academic success and mental health underscores its significance in higher education. Wilson et al. (2019), for example, show that resilience significantly predicts student achievement, implying that kids with stronger resilience perform better academically. However, further research has indicated a more sophisticated understanding of the scale's structure. For example, Fung (2020) observed that, while the BRS was first proposed as unidimensional, subsequent studies revealed the presence of two latent factors: positive resilience items and negatively valenced items. Previous research using CFA have confirmed this bifactor model, confirming the distinctness of these components and their usefulness in understanding student resilience.

Kyriazos et al. (2018) used both EFA and CFA to investigate the construct validity of the BRS, finding that resilience, as measured by the BRS, is strongly connected to stress and depression. Their findings suggest that the BRS effectively captures the resilience construct, distinguishing it from related psychological constructs. This is crucial for higher education settings, where understanding the interplay between resilience and mental health can inform interventions aimed at supporting students. The importance of ongoing research to improve the psychometric features of resilience scales in higher education as presented by Ghanizadeh (2023) show that resilience constructs may need to be reconsidered in light of current student obstacles, such as those presented by online learning environments. To summarize, the BRS have showed strong psychometric characteristics in higher education contexts using EFA and CFA in previous research from different population. The expanding understanding of resilience, particularly in connection to academic problems, emphasizes the need for specific context metrics.

### 2.2. Well-being in Higher Education Setting

Higher education institutions are increasingly recognizing the importance of mental health for student achievement and the overall quality of life. Well-being includes emotional, psychological, and social elements. Psychological well-being is a multidimensional construct that includes aspects such as self-acceptance, purpose in life, autonomy, and positive relationships (Diener et al., 2010). Grant-Smith (2023) defines well-being as feeling at ease with oneself, finding meaning and fulfillment, experiencing happy emotions, being resilient, and belonging to a respectful community. This comprehensive definition underscores the importance of both individual and communal factors in fostering well-being among students. Furthermore, Baik et al. (2019) underline the importance of universities empowering students in efforts that improve their well-being, thereby eliminating the stigma associated with mental health disorders and establishing a friendly campus climate. Academic achievement and well-being have an established link. Research shows that students who are happier typically perform better academically (Dougall, 2023; Stallman, 2010). Dougall (2023), for example, emphasizes how programs that focus on mental health can improve students' learning styles and self-perceptions.

On the other hand, Stallman (2010) discovered that students who were in psychological distress frequently had worse academic achievement, indicating that mental health problems can seriously impede academic progress. This correlation emphasizes the necessity for universities to prioritize mental health support as part of their educational mandate. Interventions aimed at promoting well-being have shown promise in enhancing student mental health. Despite the positive findings on well-being initiatives, there are still challenges with their implementation. Dooris et al. (2019) advocate for a "whole university" strategy, emphasizing a holistic commitment to health and well-being at all levels of the institution. This method necessitates not only the involvement of students, but also the active participation of instructors and staff in fostering a supportive environment. Furthermore, Ahern (2018) observes that the academic rigor commonly pursued in higher education can sometimes come at the expense of student mental health, emphasizing the importance of a balanced strategy that values both academic excellence and well-being. In conclusion, well-being is a critical aspect of the higher education experience, influencing both academic success and overall quality of life for students.

The Flourishing Scale (FS) has become a popular tool for assessing individuals' well-being and flourishing, especially those in higher education settings. Diener et al. (2010) established the Flourishing Scale, which measures several facets of well-being such as life meaning and purpose, supportive relationships, and self-acceptance. Flourishing, as measured by the FS, incorporates a broader range of psychological well-being, such as life satisfaction, positive relationships, and a sense of purpose. Previous research suggests that high psychological well-being correlates with academic engagement, motivation, and resilience (Kärner et al., 2021; Mansfield et al., 2016). However, the validation of FS in the Malaysian higher education context remains understudied, particularly among teacher candidates. The FS has been validated in various contexts, including among South African first-year students, where it demonstrated strong psychometric properties, affirming its utility in educational settings (Mostert et al., 2023). EFA studies have generally supported the unidimensional structure of the FS. For instance, Al-Dossary & Almohayya (2023), conducted EFA on a sample of special education teachers, revealing a one-factor solution that explained 49.9% of the variance in flourishing scores. This finding aligns with the original conceptualization of the FS as a single construct reflecting overall well-being.

The unidimensional character of the FS across a range of populations is further supported by CFA. For instance, Chua et al. (2022) verified the validity and dependability of the FS by conducting

CFA on it in a Malaysian environment. The Satisfaction with Life Scale's construct validity was reinforced by their study, which showed a substantial correlation between the FS scores and other well-being measures. Similarly, Hedrick et al. (2023) discovered that medical students with higher FS scores had lower burnout levels and higher work-life balance satisfaction, suggesting that the FS accurately measures pertinent aspects of student well-being. Furthermore, the FS has demonstrated robust psychometric qualities in a variety of cultural situations. The Greek version of the FS was verified by Kyriazos et al. using both EFA and CFA to establish its construct validity and reliability. According to the findings, the FS is a reliable instrument for assessing thriving across a range of demographics, including college students (Kyriazos et al., 2018).

The FS has been associated with significant outcomes in higher education in addition to being validated psychometrically. This relationship underscores the importance of fostering well-being in educational settings, as it can lead to enhanced academic performance and overall life satisfaction (Mirzaei-Alavijeh et al., 2020). Despite the encouraging findings on the FS, several scholars have urged for more investigation into its dimensionality and usefulness in certain contexts. For example, while the FS is commonly seen as a one-dimensional scale, other research suggest that it may reflect several aspects of well-being that could be investigated further (Otgon et al., 2023). Future research could benefit from delving into the intricacies of flourishing and how various elements interact to shape students' experiences in higher education. Finally, the Flourishing Scale has shown significant psychometric features in higher education contexts using EFA and CFA. Its unidimensional form and validity across varied demographics make it an effective instrument for assessing student well-being. Continued research is essential to explore the complexities of flourishing and its implications for educational practices and student support services.

### 2.3. Global and Malaysian Perspectives on Resilience and Well-being

International studies indicate that resilience training significantly enhances students' coping mechanisms and mental health outcomes (Bore et al., 2016; Owen et al., 2021). Research in Western and Asian contexts demonstrates that resilience is crucial for mitigating stress and preventing emotional exhaustion among teacher trainees (Kara & Usta, 2022). Moreover, well-being interventions in higher education have been found to improve students' overall psychological stability and academic motivation (Zin et al., 2023). These findings highlight the importance of culturally appropriate measures to assess resilience and well-being. Malaysia's higher education landscape presents unique challenges that necessitate the validation of resilience and well-being measures. The Institut Pendidikan Guru (IPG) plays a pivotal role in teacher education, operating under the Ministry of Education Malaysia (MOE) (MOE, 2023). Given IPG's structured training pathways and the high demands placed on teacher candidates, resilience and well-being assessment tools must be adapted to suit the local context. Previous Malaysian studies have primarily focused on general university students, neglecting the specific experiences of teacher trainees (Abdullah et al., 2020). This gap underscores the need for localized psychometric validation of resilience and well-being scales to inform research, intervention strategies, and policy development.

Validating resilience and well-being scales among Malaysian teacher candidates is essential for developing reliable assessment tools in higher education research. By addressing key research gaps and providing empirical insights into resilience and psychological well-being, this study aims to contribute to the field of mental health research and policy formulation in Malaysia. The outcomes will help shape evidence-based interventions to support teacher trainees' mental health, ensuring their success in both academic and professional domains.

### 2.4. Theoretical framework that support BRS and FS

The Flourishing Scale (FS) and the Brief Resilience Scale (BRS) are grounded in distinct but interrelated theoretical frameworks within positive psychology and resilience research. The FS, developed by Diener et al. (2010), is deeply rooted in theory of psychological well-being, particularly the eudaimonic perspective, which emphasizes optimal human functioning and fulfilment beyond mere hedonic pleasure (Ryan & Deci, 2001). Eudaimonic well-being is conceptualized as a multidimensional construct encompassing self-acceptance, positive relationships, meaning and purpose in life, and personal growth (Keyes, 2002; Ryff & Singer, 2008). The FS integrates these theoretical underpinnings to measure individuals' perceived success in key psychosocial domains, aligning closely with self-determination theory (SDT), which postulates that well-being emerges from the fulfilment of basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2017).

On the other hand, the BRS, introduced by Smith et al. (2008), is primarily derived from resilience theory, which conceptualizes resilience as an individual's ability to recover from stress and adversity (Richardson, 2002). Unlike traditional resilience measures that emphasize protective factors or coping mechanisms, the BRS directly assesses bouncing back from difficulties, reflecting the homeostatic model of resilience (Luthar et al., 2000). This model suggests that resilience is a dynamic process rather than a fixed trait, influenced by biopsychosocial interactions that facilitate stress recovery and psychological adaptation (Bonanno, 2004; Fletcher & Sarkar, 2013). The BRS aligns with conservation of resources (COR) theory (Hobfoll, 1989), which posits that resilience emerges from individuals' ability to maintain and restore psychological resources under threat. This theoretical foundation supports the notion that individuals with higher resilience recover more efficiently, as they possess stronger regulatory mechanisms to mitigate the impact of stressors (Tugade & Fredrickson, 2004). Together, these instruments operationalize flourishing and resilience as core components of psychological well-being, reflecting contemporary positive psychology frameworks (Seligman, 2011). Their theoretical basis underscores the transition from deficit-based models of mental health toward a strengths-based perspective, advocating for a holistic approach to understanding human potential and adaptation in the face of challenges.

## 3. Methodology

The methodology for the study conducted are as follows:

### 3.1. Research Design

This study adopted a cross-sectional survey design, which is a well-established method for assessing psychological constructs across a population at a single point in time (Creswell & Creswell, 2017). This approach is particularly suited for understanding the current levels of resilience and well-being among Malaysian undergraduate students. It enables the efficient collection of data from large samples and provides an opportunity to identify patterns and relationships between constructs (Bryman, 2016; Saunders et al., 2019). The Malaysian higher education context, characterized by academic pressure, social challenges, and post-pandemic mental health concerns, provides a timely and relevant backdrop for assessing psychological resilience and flourishing among students (Hassan et al., 2022). Studies by Weziak-Bialowolska et al. (2021) and Smith et al. (2008) have demonstrated that instruments like the Flourishing Scale (FS) and Brief Resilience Scale (BRS) are effective in measuring these constructs in various

international contexts, yet their application in Malaysia demands careful contextual adaptation due to the country's distinct sociocultural characteristics. These include collectivist values, multilingualism, and ethnic diversity, which may influence how resilience and well-being are understood and expressed.

In addition to providing a quantitative assessment of these constructs, the study aims to validate the Malay-translated versions of the FS and BRS. The need for such validation is evident as Diener et al. (2010) and Smith et al. (2008) highlighted the importance of ensuring that psychological scales are appropriately adapted to local contexts to maintain their reliability and validity. Factorial analysis during the study revealed that certain items from the original scales were removed due to poor factor loadings or cultural misalignment. The emergence of two dimensions of resilience and well-being in the Malaysian context reflects the unique cultural perspectives on well-being (Ryff, 1989), which cannot be attributed solely to linguistic differences but must also consider cultural influences. For instance, communal support and collective goals may be more prominent in Malaysian students' conceptualizations of flourishing compared to more individualistic Western frameworks.

### 3.2. Population and Sampling Method

The target population of this study comprised 1046 final-year undergraduate trainee teachers enrolled at the Institute of Teacher Education, Malacca Campus. Although simple random sampling was the intended method to ensure unbiased representation, the actual sampling approach aligned more closely with voluntary or self-selection sampling, due to administrative and logistical limitations. Nonetheless, efforts were made to include participants from diverse academic backgrounds to achieve a broad representation of the population. Sample size determination was informed by Hair et al. (2014), who recommend a minimum of 100 respondents or a ratio of 5 to 20 respondents per variable for Structural Equation Modelling (SEM). As emphasized by Kline (2016) and Worthington and Whittaker (2006), larger samples are particularly valuable in CFA and EFA to ensure reliable parameter estimates, reduce sampling error, and allow for more stable model fit indices, even when working with models containing fewer variables. Accordingly, Exploratory Factor Analysis (EFA) was conducted on a subset of 100 respondents, while Confirmatory Factor Analysis (CFA) was carried out using a separate sample of 240 respondents, resulting in a total sample size of 340 trainee teachers. This exceeded the minimum threshold and provided robust statistical power for the psychometric evaluation, in line with best practices in scale validation.

### 3.3. Instrument

The study used two well-established psychometric instruments: the Flourishing Scale (FS) by Diener et al. (2010) and the Brief Resilience Scale (BRS) by Smith et al. (2008). The FS measures psychological well-being through 8 items rated on a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree), while the BRS assesses resilience with 6 items rated on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree). Both instruments have demonstrated excellent psychometric properties, with reported Cronbach’s alpha values exceeding .80 in various studies (Diener et al., 2010; Smith et al., 2008). These values indicate that the instruments are reliable for assessing psychological well-being and resilience. While well-being is widely recognized as a multidimensional construct encompassing psychological, emotional, social, and environmental domains (Ryff, 1989), this study focused specifically on psychological well-being and resilience. This decision aligns with the study’s primary aim of validating the FS and BRS in the Malaysian context. The operationalization of these two constructs is central to the research, as they are

regarded as core internal strengths that significantly influence how individuals cope with challenges and flourish (Smith et al., 2008).

Given Malaysia's linguistic and cultural diversity, the FS and BRS underwent a rigorous translation process, following Brislin's (1986) guidelines for cross-cultural research. The instruments were first translated into Malay and then back-translated to ensure content accuracy and face validity. A panel of bilingual experts in psychology and education conducted the review process. The back-translation revealed some discrepancies, which were resolved through expert consensus, ensuring that the final Malay versions of the scales accurately reflected the meanings of the original items. Translation, rather than transliteration, was chosen to preserve semantic clarity and ensure that psychological constructs such as well-being and resilience were understood in a culturally relevant manner, in keeping with everyday language use among Malay speakers. This approach aligns with the recommendations of Benliyadi and Gupta (2024), who emphasized the importance of semantic equivalence in cross-cultural translations. An important methodological consideration was the use of two different Likert scales: a 7-point scale for the FS and a 5-point scale for the BRS. To address potential measurement inconsistencies caused by the differing scales, the study employed standardization techniques. Specifically, Z-score transformations were used to normalize the responses across both scales, ensuring that the results could be meaningfully compared (Cohen, Manion, & Morrison, 2018). Additionally, separate internal consistency analyses were conducted for each scale, and exploratory factor analyses (EFAs) were used to ensure that both instruments maintained their psychometric integrity in the Malaysian context. The factor analyses confirmed that the instruments retained their reliable internal structures, with Cronbach's alpha values above .80, indicating that both scales were appropriate for use in this population.

During the EFA, several items were removed from both scales due to poor factor loadings and cultural misalignment. These items often reflected individualistic aspects of well-being and resilience that are less relevant to the collectivist cultural values of the Malaysian student population. The analysis revealed two dimensions, one focusing on self-efficacy and emotional well-being and the other emphasizing adaptive coping strategies and social support. These findings are consistent with Yan et al. (2024), who noted that collectivist cultures often place greater emphasis on community and social support as essential aspects of psychological resilience. The emergence of these two dimensions highlights that the Malaysian context necessitates a different conceptualization of psychological well-being and resilience than what is typically observed in individualistic societies. Thus, while the FS and BRS were psychometrically robust in this study, the findings suggest that further refinements may be necessary to fully capture the complexities of well-being and resilience as understood by Malaysian students. These refinements could involve adapting certain items to better reflect cultural values and social structures. The study provides valuable insights into how psychological scales can be localized and emphasizes the need for cultural adaptations to ensure that these instruments remain valid and reliable in diverse cultural settings (Yan et al., 2024).

### 3.4. Data Collection Procedure

Prior to the data collection process, the researchers translated the BRS and FS into the Malay version through a back-to-back translation method. Once the instruments were translated, data collection was conducted via a self-administered online survey distributed through Google Forms. Ethical approval was obtained from the Ministry of Education Malaysia and the Institute of Teacher Education (Malacca Campus) before distribution. Respondents were invited through institutional communication channels and provided informed consent prior to participation. The

survey ensured anonymity and voluntary participation, adhering to the ethical research standards outlined by the American Psychological Association (APA, 2017).

### 3.5. Data Analysis

Data analysis was conducted using SPSS 26.0 for EFA and AMOS 24.0 for CFA. The analytical approach included:

**3.5.1. Exploratory Factor Analysis (EFA):** EFA was employed to assess the underlying factor structure of the modified FS and BRS scales. Principal Component Analysis (PCA) with Varimax rotation was utilized to enhance factor interpretability (Zainudin et al., 2018). Items with factor loadings below 0.60 were removed, following the threshold recommended by Hair et al. (2010) and Yıldırım & Güler (2022).

**3.5.2. Confirmatory Factor Analysis (CFA):** CFA was conducted to validate the factor structure and assess construct validity. Model fit was evaluated using three categories of fit indices as recommended by Hair et al. (2014):

- Absolute Fit: RMSEA < 0.08
- Incremental Fit: CFI, TLI, IFI, NFI, GFI, AGFI > 0.90
- Parsimonious Fit: Chi-square/df < 5.0

Convergent validity was assessed using Average Variance Extracted (AVE), requiring a threshold of >0.50 (Awang et al., 2018). Internal consistency and reliability were determined using Composite Reliability (CR), with a criterion of ≥0.60 (Awang et al., 2018). The study ensures a rigorous psychometric evaluation by integrating both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), methodologies widely recognized for establishing construct validity and reliability (Hair et al., 2019; Kline, 2016). To enhance the generalizability of findings, a simple random sampling technique was employed, minimizing selection bias and ensuring a representative sample (Bryman, 2016; Tabachnick & Fidell, 2019). Additionally, cross-cultural adaptation was meticulously conducted through standardized translation and back-translation procedures, a crucial step for maintaining the cultural relevance and linguistic equivalence of measurement instruments (Beaton et al., 2000; Van de Vijver & Leung, 2011). The study further strengthens its methodological rigor by leveraging well-established statistical software, specifically SPSS and AMOS, which are extensively utilized for robust data analysis in structural equation modeling (SEM) research (Byrne, 2016; Schumacker & Lomax, 2021). These methodological considerations collectively enhance the reliability, validity, and credibility of the research findings.

## 4. Results

### 4.1. The Process of the back-to-back translation (The Malay Version of BRS and FS Scale)

Ensuring linguistic and conceptual equivalence of survey instruments is critical, especially in cross-cultural studies. The translation process described in the table above follows the back-to-back translation method, which is widely recognized as a rigorous approach to achieving semantic consistency (Beaton et al., 2000; Brislin, 1970). The method involves two main stages of translation:

1. Translation from English to Malay: This step is crucial in adapting the questionnaire to a linguistic and cultural context that resonates with Malay-speaking respondents.

2. Translation from Malay back to English (or the original language of the questionnaire): This process ensures conceptual equivalence by translating the Malay version back to its original language and comparing both versions for discrepancies. Relevance to BRS and FS Scale

The expert panel involved in the translation of the instrument are shown in the table 1 below:

**Table 1: Panel Involved in Back-to-Back Translation**

| Back-to-Back Translation | Field of Expertise | Experts and Institutions |
|---|---|---|
| **Translation from English to Malay** | Malay Language | Senior Malay Language Teacher, Ministry of Education (KPM) |
| | Malay Language | Malay Language Lecturer, UiTM Shah Alam |
| | Malay Language | Munsyi Dewan Bahasa dan Pustaka (DBP) |
| **Translation from Malay to the original language of the questionnaire** | English Language | Excellent English Teacher, Ministry of Education (KPM) |
| | English Language | Lecturer, Pahang Matriculation College |
| | English Language | MUET Teacher & Subject Matter Expert (SME), Form 6 College |

The involvement of language and subject matter experts in a back-to-back translation process significantly enhances the validity and reliability of SEM-based survey instruments. In studies utilizing BRS and FS scales, this method ensures cultural and linguistic equivalence, preventing measurement distortions. The rigorous translation approach described above aligns with best practices in psychometric research, reinforcing the credibility of cross-cultural studies.

### 4.2. Expert Validation on the Malay Version of the BRS and FS

Three experts in the field of educational psychology who are fluent in Malay and English confirm the content validity. The expert selection criteria are that the expert must have a PhD in the field of educational psychology and have a lot of experience in this field. All experts have revised this instrument based on the objectives of the study. The panel involved in this process are shown in the table below:

**Table 2: Expert Involved in the Validation Procedure**

| Validation Process | Field of Expertise | Experts and Institutions |
|---|---|---|
| **Content Validity** | Educational Psychology | Senior Lecture, Universiti Pendidikan Sultan Idris (UPSI) |
| | Educational Psychology | Senior Lecture, Open University Malaysia (OUM) |
| | Educational Psychology | Senior Lecture, University Putra Malaysia (UPM) |

### 4.3. Exploratory Factor Analysis of the Malay Version of BRS Scale (Resilience).

To validate an instrument in the EFA Procedure, three analyses are required: KMO and Bartlett's Test, Total Variance Explained Analysis, and Scree Plot Graph, and Component Matrix with Varimax Rotation (Rotated Component Matrix). The results of these three analyses are as follows:

**4.3.1. KMO and Bartlett's Test:** Principal Component Analysis and Varimax rotation were used to factor six items. The Kaiser-Mayer-Olkin (KMO) test result is 0.740, as seen in Table 3. Because it meets the minimal value of 0.6 suggested by Tabachnick and Fidell (2007) and Chua (2014), this number is considered satisfactory. The items are appropriate for factor analysis since the KMO value shows that there is no severe multicollinearity issue in the data. Results from the Bartlett's Test are significant ($p=0.000$, $p<0.05$). These results suggest that the items are sufficiently connected to form factors, enabling further factor analysis (Hair, 2019).

**Table 3: The Result of KMO and Barlett's Test For Resilience Instruments**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin (KMO) | Measure of sampling adequacy | .740 |
| Bartlett's test of sphericity | Approx. Chi-square sphericity | 246.882 |
| | df | 45 |
| | Sig. | .000 |

**4.3.2. Total Variances Explained Analysis and Scree Plot Graph:** Table 4 below summarizes the variance explained for the resilience instrument. There are two components with eigenvalues above 1. Both factors account for 66.93% of total variance change. The total variance obtained exceeded 60%. Factors 1 and 2 contributed 34.39 and 32.53 percent of the variance, respectively, based on the sum of squared loadings during extraction. This indicates that the number of components and elements is appropriate for the field.

**Table 4: Total Variances Explain**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1 | 2.761 | 46.010 | 46.010 | 2.064 | 34.398 | 34.398 |
| 2 | 1.255 | 20.915 | 66.925 | 1.952 | 32.527 | 66.925 |

Extraction method: principal component analysis

The scree plot graph in Figure 1 below shows that there are two main factors that are extracted into the resilience construct and correspond to the results in Table 4.

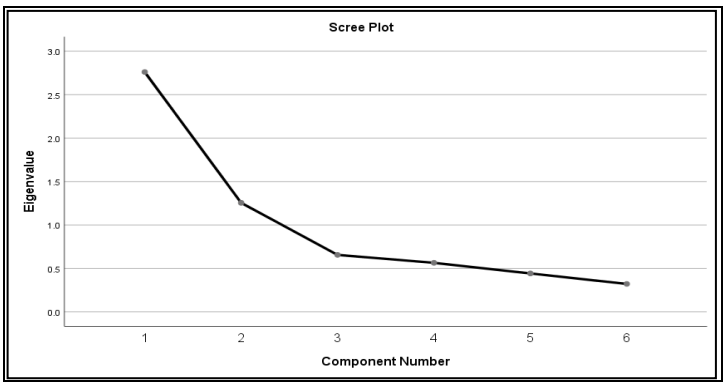


**Figure 1: Scree Plot graph for resilient construct**

**4.3.3. Rotated Component Matrix with Varimax Rotation:** After determining the number of factors, the researcher examines the factor loading of each item, which indicates which factor the items are related to and if they will be eliminated from the analysis. Following varimax rotation, a Rotated Component Matrix is used to display the relationship between the items and their factors. The items were removed from the analysis if their factor loading was less than 0.60. This construct's items are divided into two categories and nothing was taken out of this construct. The results show that three items in the first factor had factor loadings between 0.73 and 0.81, whereas three items in the second factor had factor loadings between 0.74 and 0.80. The factor loading results for each item are displayed in Table 5.

**Table 5: Factor and Factor Loading**

| No | Items | Result of Factor Loading 1 | 2 |
|---|---|---|---|
| Factor 1: Resilient Capacity | | | |
| 1 | I tend to bounce back quickly after hard times.<br>*("Saya cenderung untuk bangkit semula daripada kesukaran.")* | .805 | |
| 5 | I usually come through difficult times with little trouble.<br>*("Saya boleh pulih walaupun masih menghadapi sedikit kesukaran.")* | .791 | |
| 3 | It does not take me long to recover from a stressful event.<br>*("Saya tidak memerlukan masa yang lama untuk bangkit semula daripada situasi yang tertekan.")* | .733 | |
| Factor 2: Resilient Disturbance | | | |
| R2 | I have a hard time making it through stressful events.<br>*("Saya sukar menghadapi situasi yang menimbulkan tekanan.")* | | .804 |
| R6 | I tend to take a long time to get over setbacks in my life.<br>*("Saya mengambil masa yang lama untuk pulih daripada kekecewaan dalam hidup.")* | | .745 |
| R4 | It is hard for me to snap back when something bad happens.<br>*("Sukar untuk saya bangkit semula setelah sesuatu yang buruk terjadi.")* | | .741 |

Two factors are supported by the items in this study. Additionally, by displaying the Cronbach alpha value, researchers assess the validity of the scale. The scale is valid for use in research studying university students' resilience, as evidenced by the present dataset's Cronbach alpha of 0.757, which is classified as a strong value. Following the EFA procedure, Cronbach's alpha values for the complete resilient construct are shown in Table 6.

**Table 6: Cronbach's Alpha Coefficient For The Entire Factor After (EFA)**

| Factor | Number of items | Alpha value |
|---|---|---|
| Factor 1: Resilient Capacity | 3 | .724 |
| Factor 2: Resilient Disturbance | 3 | .702 |
| Overall Resilient Factor | 6 | .757 |

Cronbach's Alpha value >0.7 indicates that the construct of the research instrument has a high construct value (Hair et al., 2014).

**4.4. Confirmatory Factor Analysis of the Malay Version of BRS Scale (Resilience).**

The researcher proceeded with the Confirmatory Factor Analysis (CFA) approach after finishing the exploratory factor analysis (EFA) procedure. The following conclusions were drawn from the data collected:

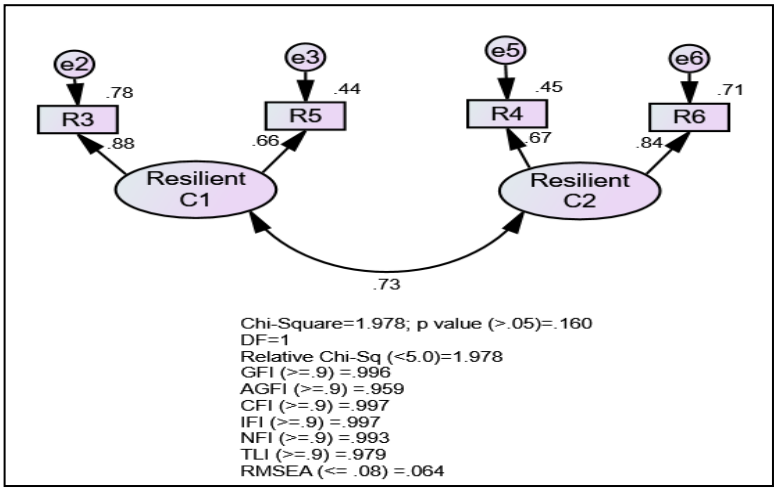


**Figure 2: CFA result for Resilience Construct**

The Resilient construct has two components resulting from the EFA Analysis. Component 1 & 2 consists of three items previously in the EFA, but 1 item from both components had removed because of its lower factor loading. So now, both components had two items respectively. Figure 2 illustrates the measurement model that measures the resilient construct. The fitness indices in Figure 2 shows that the resilient construct model had reached its level as shown in Table 7 below. This means that the construct validity of resilient had been achieved (Awang et al., 2023).

**Table 7: Findings of Construct Validity (Fit Indices)**

| Criteria | Fitness Indices | Cut of Value | Index value obtained | Status |
|---|---|---|---|---|
| **Absolute fit** | RMSEA | ≤ 0.08 | 0.064 | Fit |
| **Incremental fit** | CFI | ≥ 0.90 | 0.997 | Fit |
| | TLI | ≥ 0.90 | 0.979 | Fit |
| | IFI | ≥ 0.90 | 0.997 | Fit |
| | NFI | ≥ 0.90 | 0.993 | Fit |
| | GFI | ≥ 0.90 | 0.996 | Fit |
| | AGFI | ≥ 0.90 | 0.959 | Fit |
| **Parsiminious Fit** | Chisq/df | ≤ 5.0 | 1.978 | Fit |

Next step would be evaluated the convergent validity value through the Average Variance Extracted (AVE) and Composite Reliability (CR) values shown in table 8 below:

**Table 8: AVE and CR value for Resilient Construct**

| Construct | Item | Factor Loading | AVE (above 0.5) | CR (above 0.6) |
|---|---|---|---|---|
| **Resilience Component1** | R3 | 0.88 | **0.61** | **0.75** |
| | R5 | 0.66 | | |
| **Resilience Component2** | R4 | 0.67 | **0.58** | **0.73** |
| | R6 | 0.84 | | |

All AVE values have attained the 0.5 criterion, as seen in Table 6. This demonstrates that this construct's convergent validity has been attained (Awang et al., 2023). In addition, every Composite Reliability (CR) rating has beyond the 0.6 cutoff point. This indicates that the construct's Composite Reliability was attained (Awang et al., 2023; Chua, 2014). The findings indicate that the BRS scale, which has been divided into two dimensions, meets all the established

criteria in the CFA analysis, including goodness-of-fit indices, convergent validity, and discriminant validity. Therefore, this BRS scale is appropriate for use in the context of higher education in Malaysia, especially for trainee teachers.

### 4.5. Exploratory Factor Analysis of the Malay Version of FS Scale (Wellbeing).

The results of the exploratory factor analysis for the well-being construct are as follows.

**4.5.1. KMO and Bartlett's Test:** The dataset is suitable for factorial analysis because the KMO value was 0.919 and the Barlett's test of sphericity was significant. Table 9 shows the outcome.

**Table 9: The Result of KMO and Barlett's Test For Wellbeing Instruments**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin (KMO) | Measure of sampling adequacy | .919 |
| Bartlett's test of sphericity | Approx. Chi-square sphericity | 759.921 |
| | df | 28 |
| | Sig. | .000 |

**4.5.2. Total Variances Explained Analysis and Scree Plot Graph:** Principal components analysis employed Varimax rotation with a coefficient of 60. Eight components with eigenvalues greater than one were found in the data, accounting for 65.31% of the variance. Table 10 provides comprehensive details regarding the eigenvalue and its variances.

**Table 10: Total Variances Explain**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1 | 5.225 | 65.312 | 65.312 | 5.225 | 65.312 | 65.312 |

Extraction method: principal component analysis

The scree plot graph in Figure 3 below demonstrates that just one main factor was extracted into the well-being construct, which corresponds to the findings in Table 10.

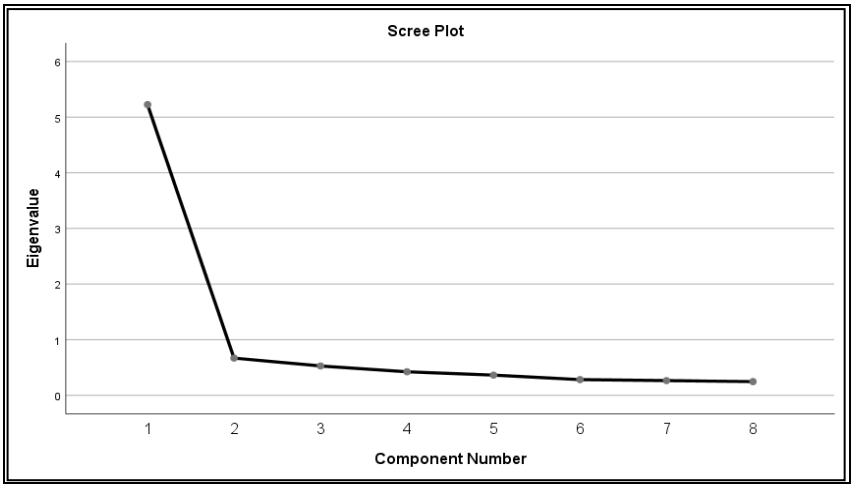


**Figure 3: Scree plot graph for wellbeing construct**

**4.5.3. Rotated Component Matrix with Varimax Rotation:** Table 11 shows the overall factor loading values for the well-being construct components. The varimax rotation matrix findings show that the factor loading values range between 0.736 and 0.861. The factor loading value for

each item exceeds the 0.6 minimum threshold value recommended by Hair et al. (2019) and Zainudin Awang et al. (2018). Not a single item has a factor loading less than 0.60.

**Table 11: Factor and Factor Loading**

| No | Items | Result of Factor Loading 1 |
|---|---|---|
| 1 | I am engaged and interested in my daily activities. (“*Saya melibatkan diri dan menyukai aktiviti harian saya.”*) | .861 |
| 2 | I am optimistic about my future. (“*Saya optimis terhadap masa depan.”*) | .834 |
| 3 | I am competent and capable in the activities that are important to me. (“*Saya cekap dan berkebolehan dalam aktiviti yang penting bagi diri sendiri*.”) | .826 |
| 4 | I am a good person and live a good life. (“*Saya seorang yang baik dan menjalani kehidupan yang baik.”)* | .818 |
| 5 | I actively contribute to the happiness and well-being of others. (“*Saya menyumbang secara aktif terhadap kebahagiaan dan kesejahteraan orang lain.”*) | .808 |
| 6 | I lead a purposeful and meaningful life. (“*Saya menjalani kehidupan yang bermatlamat dan bermakna.”*) | .798 |
| **7** | People respect me. (“*Saya dihormati oleh orang lain.”*) | .778 |
| 8 | My social relationships are supportive and rewarding. (“*Hubungan sosial saya menyokong dan memberikan ganjaran.”*) | .736 |

Cronbach's alpha value was used to confirm the instrument's reliability. With a Cronbach's alpha of 0.923, this scale has extraordinarily high dependability.

### 4.6. Confirmatory Factor Analysis of the Malay Version of FS Scale (Wellbeing).

The results for the CFA of the wellbeing instrument are showed as below:

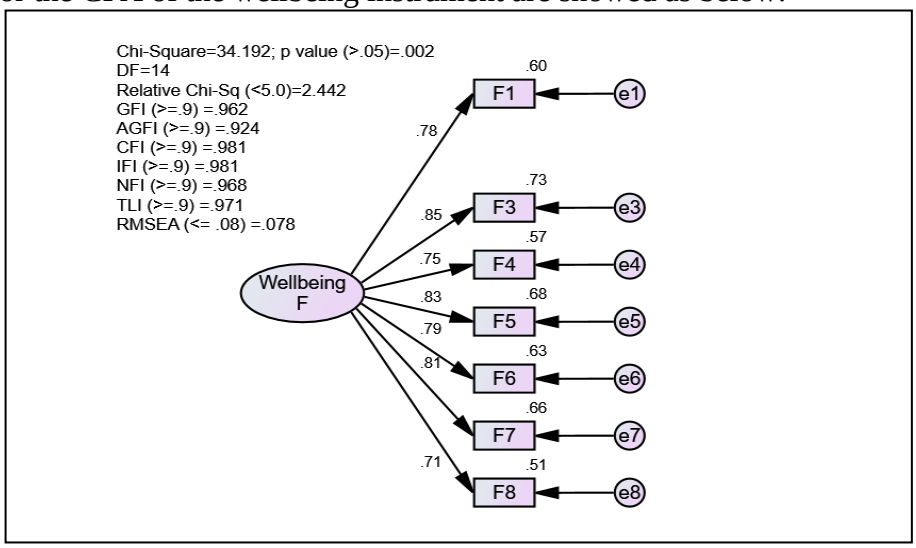


**Figure 4: CFA for wellbeing construct**

The wellbeing construct is unidimensional resulting from the EFA Analysis. Item F2 was removed from the construct because its lower factor loading that less than 0.5. So now, the construct only has 7 items only. Figure 4's fitness indices demonstrate that this construct satisfies every fit criterion listed in Table 10 below. This indicates that the wellbeing construct's construct validity has been achieved (Awang et al., 2023).

**Table 12: Goodness Fit of Test Criteria**

| Criteria | Fitness Indices | Cut of Value | Index value obtained | Status |
|---|---|---|---|---|
| **Absolute fit** | RMSEA | ≤ 0.08 | 0.078 | Fit |
| **Incremental fit** | CFI | ≥ 0.90 | 0.981 | Fit |
| | TLI | ≥ 0.90 | 0.971 | Fit |
| | IFI | ≥ 0.90 | 0.981 | Fit |
| | NFI | ≥ 0.90 | 0.968 | Fit |
| | GFI | ≥ 0.90 | 0.962 | Fit |
| | AGFI | ≥ 0.90 | 0.924 | Fit |
| **Parsiminious Fit** | Chisq/df | ≤ 5.0 | 2.442 | Fit |

The next step would be to analyze the convergent validity value using the Average Variance Extracted (AVE) and Composite Reliability (CR) values presented in Table 13.

**Table 13: Goodness fit of test criteria**

| Construct | Item | Factor Loading | AVE (above 0.5) | CR (above 0.6) |
|---|---|---|---|---|
| **Welbeing** | F1 | 0.78 | **0.624** | **0.920** |
| | F3 | 0.85 | | |
| | F4 | 0.75 | | |
| | F5 | 0.83 | | |
| | F6 | 0.79 | | |
| | F7 | 0.81 | | |
| | F8 | 0.71 | | |

Table 13 reveals that all AVE values have exceeded the threshold value of 0.5, as have the CR values of 0.6. These findings indicate that the FS scale, meets all the established criteria in the CFA analysis, including goodness-of-fit indices, convergent validity, and discriminant validity. Therefore, this FS scale is appropriate for use in the context of higher education in Malaysia, especially for trainee teachers.

## 5. Discussion

This study set out to examine the psychometric robustness of the Malay versions of the Brief Resilience Scale (BRS) and the Flourishing Scale (FS), with a specific focus on their applicability among university students in Malaysia, particularly teacher trainees. As mental health and well-being gain increasing recognition as integral to educational success, the validation of culturally adapted instruments for measuring resilience and psychological flourishing is both timely and essential. The findings from this study offer compelling evidence supporting the reliability and validity of both tools, while also contributing meaningfully to the existing literature on psychological assessment in higher education settings.

The Malay version of the Brief Resilience Scale demonstrated strong psychometric properties, affirming its suitability for assessing resilience among Malaysian university students. The rigorous translation process, employing the back-to-back method and involving both linguistic and subject-matter experts, ensured semantic and conceptual equivalence between the original and translated versions. This approach aligns with best practices in cross-cultural research and reinforces the cultural and academic appropriateness of the instrument. Content validation by

educational psychologists further confirmed the relevance of the BRS items to the lived experiences of Malaysian teacher trainees. This is particularly significant given the demanding nature of teacher education programs in Malaysia, which often involve heavy academic workloads, extended teaching practicums, and long-term career planning factors that collectively contribute to elevated stress levels among students.

Exploratory Factor Analysis (EFA) revealed a two-factor structure for the BRS Resilient Capacity and Resilient Disturbance—accounting for 66.93% of the total variance. This bifactor model offers a more nuanced understanding of resilience, capturing both students' strengths and their vulnerabilities in responding to stress. These findings align with previous studies by Fung (2020) and Kyriazos et al. (2018), who similarly advocated for a multidimensional conceptualization of the BRS. Confirmatory Factor Analysis (CFA) supported this two-factor structure, with fit indices such as RMSEA = 0.064 and CFI = 0.997 falling within recommended thresholds. Internal consistency, measured through Cronbach's alpha, exceeded the 0.70 benchmark for both factors, reinforcing the scale's reliability.

Theoretical grounding for these results can be found in resilience theory, particularly the homeostatic model proposed by Luthar et al. (2000), which views resilience as an adaptive and dynamic process rather than a static trait. This perspective is especially relevant for teacher trainees, whose academic journeys are often marked by emotional and psychological challenges. The observed bifactor structure of the BRS reflects this complexity, distinguishing between those who can quickly recover from setbacks and those who may experience prolonged emotional distress. These findings also support the scale's potential utility in future research aimed at designing interventions and support mechanisms tailored to the resilience needs of Malaysian teacher candidates.

Beyond construct validity, the BRS demonstrated strong psychometric soundness through analyses of Average Variance Extracted (AVE) and Composite Reliability (CR), both of which exceeded conventional thresholds. These results affirm the scale's convergent validity and internal consistency, consistent with the psychometric standards proposed by Hair et al. (2014) and Awang et al. (2023). The findings are also theoretically congruent with Hobfoll's (1989) Conservation of Resources (COR) theory, which posits that resilience reflects an individual's capacity to conserve and restore personal resources when facing stress. Thus, the validated Malay version of the BRS not only holds theoretical coherence but also provides a practical tool for assessing adaptive capacities in the local higher education context.

Similarly, the Malay version of the Flourishing Scale exhibited exceptional psychometric properties. EFA results confirmed a unidimensional structure explaining 65.31% of the total variance, with all items loading significantly on a single factor. This aligns with the original conceptualization by Diener et al. (2010) and is corroborated by more recent validation studies across varied populations (Al-Dossary & Almohayya, 2023; Mostert et al., 2023). The high Cronbach's alpha value of 0.923 indicates excellent internal consistency, validating the scale's reliability in measuring psychological well-being among teacher trainees.

The Flourishing Scale is theoretically rooted in the eudaimonic tradition of well-being, which emphasizes meaning, self-actualization, and positive social relationships over fleeting emotional states. According to Ryan and Deci (2001), flourishing involves the fulfilment of basic psychological needs and the realization of one's potential. The present findings confirm the scale's alignment with these constructs and underscore its relevance within the Malaysian higher education setting, where student well-being is increasingly recognized as a predictor of academic

success. Prior research, such as that by Zin et al. (2023), supports this relationship, showing that well-being positively correlates with academic engagement and reduces psychological distress particularly among pre-service teachers.

CFA further validated the unidimensional nature of the FS, with the final model (after removing one item with sub-threshold factor loading) showing excellent fit (RMSEA = 0.078; CFI = 0.981). In addition, the AVE and CR values surpassed the accepted benchmarks, confirming strong convergent validity and internal consistency. These findings reinforce the FS's status as a theoretically grounded and psychometrically sound instrument for assessing psychological well-being in Malaysian higher education.

The construct of flourishing also maps closely onto Self-Determination Theory (SDT) as articulated by Deci and Ryan (1985), which posits that well-being stems from the fulfilment of psychological needs for autonomy, competence, and relatedness. The FS items pertaining to life purpose, optimism, social connection, and life satisfaction resonate well with these domains. In Malaysia's competitive and performance-driven academic environment, the capacity to measure holistic well-being is essential. The FS provides educators with a validated tool for identifying students' psychological states, guiding support strategies, and evaluating the effectiveness of mental health and well-being programs aimed at fostering sustainable personal and academic development.

## 6. Conclusion

This study evaluated the psychometric properties of the Malay versions of the Brief Resilience Scale (BRS) and the Flourishing Scale (FS) among Malaysian university students, focusing specifically on teacher trainees. Through a rigorous process involving translation, expert validation, and both exploratory and confirmatory factor analyses, the findings affirmed the validity, reliability, and theoretical integrity of both instruments within the Malaysian higher education context. The BRS exhibited a two-factor structure Resilient Capacity and Resilient Disturbance highlighting the complex, multidimensional nature of resilience among students facing academic and personal challenges in teacher education. In contrast, the FS retained its unidimensional structure, effectively measuring psychological well-being and optimal functioning. Both scales met or exceeded established psychometric standards, including internal consistency, convergent validity, and model fit, confirming their appropriateness for the Malaysian educational landscape.

The validation of these tools has significant implications. For research, the BRS and FS offer robust, culturally adapted instruments for assessing resilience and flourishing, enabling longitudinal studies, cross-cultural comparisons, and the development of targeted psychological interventions. The bifactor structure of the BRS provides a nuanced understanding of resilience, while the unidimensional FS offers straightforward application across diverse research settings. In practice, these validated scales can enhance institutional support frameworks in higher education, particularly for teacher education programs. Routine assessments of students' resilience and well-being, through tools like the BRS and FS, can identify at-risk students and guide the design of tailored support services such as resilience-building workshops and mental health campaigns that foster psychological well-being.

From a policy perspective, this study provides empirical support for integrating psychological assessments into national educational quality assurance frameworks. As Malaysia moves towards

a more holistic, student-centered approach to higher education, instruments like the BRS and FS can play a key role in monitoring and improving student welfare. The Ministry of Higher Education may consider incorporating these validated scales into institutional performance indicators to ensure that non-academic aspects of student development are systematically addressed. Future research should expand the validation of these instruments to a wider range of student populations, including those in technical, vocational, and postgraduate education. Longitudinal studies are recommended to track the evolution of resilience and flourishing over time, offering insights into critical periods for intervention. By embedding these measures in the broader discourse on student well-being, Malaysian higher education institutions can take a proactive role in fostering the psychological strengths necessary for academic and lifelong success.

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# ROLE OF ACADEMIC MOTIVATION IN PREDICTING INTENTION TO PURSUE POST-GRADUATE EDUCATION AMONG UNIVERSITY STUDENTS

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## ABSTRACT

This study employs a causal comparative study design to explore the academic motivation profiles of bachelor's final semester students in public sector universities in Quetta, Pakistan. The causal relationship between these profiles and students' intentions to pursue postgraduate education is examined. Using Self-Determination Theory (SDT) as a framework, this research identifies three distinct motivational profiles—high, moderate, and low motivation—through hierarchical and two-step cluster analyses. The findings indicate motivation profile of students predicts their intentions to pursue postgraduate studies. The study employs ordinal logistic regression to confirm the predictive power of motivational profiles and to identify shaping educational intentions. The study highlights the need for targeted interventions, including scholarships, motivational workshops, and community-based initiatives, to foster higher educational aspirations, particularly in underrepresented regions like Balochistan.

**Keywords:** Motivational profile, Self-Determination Theory (SDT), Intention to Pursue, Postgraduate Education, Academic motivation, Public Sector University, Cluster Analysis

# 1. Introduction

## 1.1. Academic Motivation

The Self-Determination Theory (SDT), proposed by Deci and Ryan (1985), emphasizes motivation as a multifaceted construct, encompassing various types, qualities, and combinations of motivation. This conceptual framework is particularly applicable to academic motivation, which refers to a learner's enthusiasm for academic pursuits, assessed against standards of academic achievement or performance (McClelland et al., 1953). The theory distinguishes motivation into four forms of extrinsic motivation: integrated regulation (EMIN), introjected regulation (EMINT), external regulation (EMER), and identified regulation (EMID), in addition to a state of amotivation (AMOT) and intrinsic motivation (IM).

Deci and Ryan (1985) presented the motivational states on a continuum ranging from the autonomous form of motivation, intrinsic motivation (IM), to the absence of motivation, amotivation (AMOT) (Deci & Ryan, 2008; Can, 2015). Expanding on this, Vallerand et al. (1989) subdivided intrinsic motivation into three distinct categories: intrinsic motivation to accomplish (IMTA), intrinsic motivation to know (IMTK), and intrinsic motivation for stimulation (IMTS). They also excluded integrated regulation (EMIN) from this continuum (Ryan & Deci, 2000b; Filgona et al., 2020; Can, 2015).

The Academic Motivation Scale (AMS) encompasses several distinct constructs that capture different types of motivation along the self-determination continuum. Integrated regulation (EMIN) refers to performing academic tasks because they are aligned with one's identity and deeply held values. Introjected regulation (EMINT) involves engaging in academic activities due to internal pressures such as guilt, shame, or the desire to maintain self-esteem. External regulation (EMER) describes behavior that is driven by the expectation of rewards or the avoidance of punishment. Identified regulation (EMID) reflects a form of extrinsic motivation in which the individual perceives academic tasks as personally valuable and worthwhile. On the intrinsic end of the spectrum, intrinsic motivation to accomplish (IMTA) is characterized by engagement in academic activities for the inherent satisfaction of achieving goals, while intrinsic motivation to know (IMTK) is driven by the pleasure derived from learning and understanding new concepts. Intrinsic motivation for stimulation (IMTS) refers to pursuing academic tasks for the excitement and stimulation they provide. In contrast, amotivation (AMOT) represents a complete lack of motivation, where individuals neither see value in the task nor believe in their capacity to succeed.

SDT emphasizes the quality of motivational orientations, differentiating between autonomous and controlled motivations. Actions stemming from IMTA, IMTK, and IMTS are considered entirely autonomous, while behaviors driven by EMID fall under partially autonomous type of motivations. Conversely, EMER and EMINT are associated with externally controlled behaviors. AMOT, on the other hand, signifies an absence of drive or intent. Intrinsic motivation to know (IMTK) pertains to engaging in activities purely for the joy of discovery, exploration, or creating novel insights.

For instance, if a pupil enjoys doing homework, their motivation would be IMTK. IMTA pertains to deriving satisfaction from achieving something, as seen in pupils who complete extra math problems voluntarily, exhibiting IMTA. IMTS describes actions undertaken to experience stimulating sensations resulting from the activity, such as a driver exceeding speed limits for an adrenaline rush (Can, 2015).

EMID involves undertaking tasks to achieve favorable outcomes. When a pupil views an academic task as valuable and important, their motivational orientation is EMID. EMINT involves performing tasks to maintain self-esteem, pride, or to avoid guilt or anxiety, while external regulation refers to actions performed due to external demands or potential rewards (Altıntaş et al., 2018). When a pupil willingly internalizes the importance of a task, EMINT emerges. Amotivation, on the other hand, occurs when individuals view tasks as meaningless or believe they lack the ability to accomplish them. AMOT is the final motivational state in SDT, representing neither autonomous nor controlled behavior but rather a lack of motivation (Can, 2015; Filgona et al, 2020 Vallerand et al., 1992).

While Self Determination Theory separates motivation into distinct subtypes, some researchers (Deci & Ryan, 2012; Hayenga & Corpus, 2010; Ratelle et al., 2007) suggest that extrinsic and intrinsic motivation can coexist within the same individual, and multiple motivational orientations may operate simultaneously. Consequently, students may demonstrate various sub-motivations at different levels, allowing for several clusters of motivations within the same population.

According to SDT, when an individual's motivational orientation is autonomous, the related outcomes will tend to be more favorable (Deci et al., 1991; Deci et.,2012 Ryan & Deci, 2009). Studies employing both the variable-centered and the person-centered approach support this assertion (Boichè & Stephan, 2014; Guo, 2018; Hayenga & Corpus, 2010; Krapp et al., 1992; Schunk et al., 2013; Vansteenkiste et al., 2005; Vansteenkiste et al., 2009; Vallerand et al., 1997; Wormington et al., 2012).

### 1.2. Intention to Pursue Postgraduate Education

According to Ajzen (1991), intention is a significant factor that precedes human actions requiring decision-making processes and serves as an immediate determinant of voluntary behaviors. This construct has garnered considerable attention in the social sciences due to its pivotal role in predicting behavior (Gardner et al., 2020). Intentions determine individual actions, requiring willingness, and research suggests that deliberate intentions maximize the likelihood of goal attainment (Rhodes & Rebar, 2017). Among the various frameworks employed in behavioral studies, the Theory of Planned Behavior (TPB) is one of the most widely used to predict intention (Fayolle & Liñán, 2014; Riyanti, 2018). Within academic settings, Pugh (2019) demonstrated that intentions to pursue, persist, and complete education have a stronger predictive role than departure intentions, such as leaving or dropping out.

Despite its extensive application, minimal research has explored intentions to undertake postgraduate courses (Jepson & Verhegyi, 2011; Mosbah et al., 2019). TPB, as proposed by Ajzen (1991), posits that behavior is most accurately predicted by intention, which is shaped by three key determinants: attitudes, subjective norms, and perceived behavioral control. Attitudes reflect an individual's evaluation of the behavior as favorable or unfavorable. Subjective norms pertain to the individual's perception of whether significant others believe they should or should not perform the behavior. Perceived behavioral control refers to the individual's belief in their ability to execute the behavior. Together, these determinants provide a comprehensive framework for understanding academic decision-making processes.

Some studies have yielded intriguing and occasionally conflicting findings. For instance, Wegner (1969) studied the choice to pursue postgraduate studies by looking at gender differences, family background, marriage length, and academic skills. The findings showed that men's decisions were mostly shaped by academic ability, while women were influenced by a mix of strong academic

skills, low family income, and late marriage. Similarly, Ball (2016) found that men were significantly less likely than women to express intentions to pursue postgraduate studies. In the medical field, Martins et al. (2022) analyzed factors affecting students' preferences for surgical specialization in postgraduate education in Pakistan, while Hassan et al. (2022) explored the impact of social capital factors on such intentions.

Although the Theory of Planned Behavior comprises three determinants, attitudes, subjective norms, and perceived behavioral control, intention is its most proximal predictor of behavior (Ajzen, 1991). Meta-analytic evidence shows that intention alone explains a substantial portion of variance in behavior (Armitage & Conner, 2001). Moreover, research integrating Self-Determination Theory and TPB has demonstrated that autonomous motivation directly predicts intention, even when TPB mediators are included (Hagger & Chatzisarantis, 2009; Chatzisarantis et al., 2003). Accordingly, this study focuses exclusively on the relationship between motivational profiles and intention, providing a clear test of motivation's predictive power.

### 1.3. Current Study

Motivation serves as a critical psychological driver behind intention (Ryan & Deci, 2017; Pop et al., 2020). Ajzen (1991) and Ajzen and Fishbein (1980) emphasized the importance of intention in predicting human behavior. Researchers have consistently identified motivation as a significant factor influencing students' intentions (Chan et al., 2015a; Chan et al., 2015b; Bernet et al., 2017). Understanding the interplay between motivation and intention can provide valuable insights for educators and policymakers in designing interventions to improve academic outcomes, including persistence and graduation rates (Suttor & Paulson, 2016).

This research aims to determine the academic motivation profiles of university students and to examine the relationship between emerging profiles and their intention to pursue postgraduate education. There remains a significant lack of research focusing on the academic motivation profiles of university students in Pakistan. The Higher Education Commission of Pakistan emphasizes the increase in the number of postgraduate students in the country (Akhtar, 2019), and according to recent statistics related to higher education in Pakistan, the total number of students enrolled in a bachelor's degree in Punjab is 270,078, while students who enroll in masters are 65,643 and total Ph.D. enrollments are 8,256. In Sindh, 174,467 students were enrolled in BS programs (bachelors), 34,503 were enrolled in MS programs (master's degree), and the total enrollment in Ph.D. programs was 2,475. In KPK, the total number of students enrolled in bachelor's degrees is 89,621; the number of students enrolled in master's degrees is 14,906, and the number of students enrolled in a Ph.D. is 2,179. In Balochistan, the total number of students for bachelor's are 14,755; for master's, and degree, 4,731, and 228, respectively. It is evident from these statistics that Balochistan lags behind in terms of educational indicators, particularly postgraduate enrollments. However, intention is the strongest predictor of behavior, but there are no studies conducted to understand the factors which effect intentions of bachelor student to pursue post graduate education. Furthermore, only a small number of studies have focused on determining motivation profiles in different cultural contexts and included the aspects of intrinsic motivation, extrinsic motivation, and amotivation in cluster analysis (Boiché & Stephan, 2014; Ratelle et al., 2007). In most of the existing research, motivation has been analyzed mainly as autonomous-controlled or internal-external aspects.

In this study, the AMS scale was used to assess seven types of academic motivation, while TPB was employed to measure students' intentions and behavioral beliefs toward postgraduate study.

These constructs were selected to reflect both internal motivations and social-cognitive predictors of intention. This study has used all seven aspects of academic motivation into the cluster analysis. This approach gave an opportunity to observe the academic motivations naturally exhibited by pupils in detail. Additionally, it enabled an in-depth analysis of the relationship between academic motivation profiles and students' intentions to pursue postgraduate education. Findings from earlier studies demonstrate that various dimensions of motivation significantly correlate with students' intentions, and motivational profiles are regarded as an essential variable in shaping student intention (Barkoukis et al., 2021; Leavell, 2016; Moreno-Murcia et al., 2013; Sicilia et al., 2015).

This study is also valuable for testing the applicability of Self-Determination Theory (SDT) within the cultural context of Pakistan. The findings contribute to a better understanding of how academic motivation profiles influence intentions, while also providing evidence regarding the cultural validity of SDT. By exploring these relationships in detail, the research addresses critical gaps in the literature and offers practical implications for educators and policymakers.

## 2. Methodology

### 2.1. Research Design

This causal comparative study (Paynter, 2004; Jurgens, 2018; Pugh, 2018; Fernández & Cañado, 2001) aims to unveil the academic motivation profiles of university students and explore the causal relationship between the motivation profiles of bachelor's final semester university students and their intention to pursue postgraduate education.

### 2.2. Study Group

The population for this study was bachelor's final semester students studying in public sector universities in Quetta. Students enrolled in bachelor's degree programs final semester in all public sector universities were identified (N=1582). Data for this study were collected through an online survey distributed to all final semester students enrolled in public sector universities located in Quetta city. A total of 650 completed questionnaires were received and included in the analysis. The final sample consisted of 650 students, of which 313 (48.2%) were female and 337 (51.8%) were male. Most respondents (94%) belonged to the 18–24 age group. Additionally, 11 students were aged between 25–30 years, another 11 students were in the 31–35 age range, and 12 students fell within the 36–40 age group.

### 2.3 Ethical Consideration

Research in Social science frequently focuses on humans as the primary subjects of investigation, indicating the need to make sure that the research follows a given set of ethical considerations. In this study, the researcher sought and received ethical clearance from the Ethics Committee for Research Involving Human Subjects (JKEUPM). This involved submitting all required documentation for review. The Ethical Committee approved the proposed study, and the researcher commenced the study only after receiving the approval letter.

### 2.4. Data Collection Tools

#### 2.4.1. Academic Motivation Scale (AMS)

Vallerand developed the Academic Motivation Scale (AMS) et al. in 1992, assessing seven subscales of academic motivation by considering self-determined motivation levels. This assessment aimed to unveil pre-existing motivational profiles using the Academic Motivation

Scale (AMS), which includes a subscale for a-motivation, three subscales dedicated to extrinsic motivation, and three subscales focusing on intrinsic motivation. The AMS continuum was adopted from "Construct validation de l'Echelle de Motivation education" by Vallerand et al. (1989). This scale has 28 items, four items for each subscale. Research participants rated how they can relate statements to themselves relate to them on a 7-point Likert-type scale. The AMS is a 28-item Likert-type scale. The Scale comprises seven sub-scales that assess amotivation (AMOT), three types of intrinsic motivation (IMTK, IMTA, IMTS), and three types of extrinsic motivation (EMER, EMIN, EMID), and. Construct validity: Previous studies have utilized confirmatory factor analysis to examine construct validity. The residual analysis and fit indices provide evidence for the validity of the AMS model with seven subscales, as described in the literature (Can, 2015; Guay et al., 2015; Haslofca & Korkmaz, 2016; Orsini., 2015; Stover et al., 2012).

Cronbach's Alpha (Cronbach, 1951) is a commonly used measure of reliability for scales comprising multiple questionnaire items (Bonnet & Wright, 2015). It's values above 0.60 are generally considered indicative of acceptable internal consistency, while values below 0.50 are seen as unacceptable (Manerikar & Manerikar, 2015).

### 2.4.2. Theory of Planned Behavior (TPB)

The TPB (Theory of Planned Behavior) (Ajzen, 1991) has been widely adopted in educational and psychology research to explore behavioral intentions. The response in relation to these constructs is recorded through Likert scales. This scale is widely recognized to produce ordinal data. Many studies have incorporated the constructs of TBP in their studies. For instance, (Huda et al., 2012; Ilmiyah et al., 2022; Bornschlegl et al, 2021; Johnson, 2017; Mah, 2020; Isnanda & Nurmala, 2022; Billari & Philipov, 2005), Adulyarat and Adulyarat, 2023) have utilized ordinal scales in their TPB-based studies, supporting the ordinal characteristic of the TPB framework. The TPB-PGQ comprises a total of 20 items. Participants' intention will be evaluated based on their responses to questions that assess intention (questions 1, 4, 7, 10, and 11) using a 6-point Likert-type scale questionnaire.

### 2.4.3. The Academic Motivation Scale (AMS)

A higher level of academic motivation will be indicated by a higher score, apart from the a-motivation subscale, in which a higher score will indicate a lower motivation level. Previous psychometric studies have utilized confirmatory factor analysis to examine construct validity. The residual analysis and fit indices provide evidence for the validity of the seven-subscale AMS model as described in the literature (Can, 2015; Guay et al., 2015; Orsini., 2015; Stover et al., 2012).

## 2.5. Data Collection and Analysis

Hierarchical Cluster Analysis is a method of cluster analysis which is used to build a hierarchy of clusters. Strategies for hierarchical clustering generally fall into two types: Agglomerative and Divisive. Agglomerative is a bottom-up approach where each observation starts in its own cluster and pairs of clusters are merged as one move up the hierarchy. Divisive is a top-down approach where all observations start in one cluster, and splits are performed recursively as one moves down the hierarchy. One of the most important properties of ordinal data is that it does not require the normality assumption because of its nonparametric nature. To analyze the nonparametric/ordinal data several nonparametric tests such as Kruskal-Walli's test, Kendall's tau-b test, and ordinal logistic regression are used. Primarily following is a brief explanation of each test used for statistical analysis in this study. The Kruskal-Walli's test was used to determine

if there are differences between intention and the motivational profiles compare the difference in the mean ranks of the distributions. Ordinal regression analysis was used to see if they have any significant/causal relationship between intention to pursue postgraduate education and motivational profiles. The goal of regression analysis is to predict the effect of independent variable dependent variable (motivational profiles) to the dependent variable (student intention).

# 3. Results

## 3.1 Cluster analysis

A hierarchical cluster analysis was performed using z-scores derived from the AMS subscales. To determine the number of clusters during the initial phase, the algorithm list generated from the study was reviewed, and gaps between cluster distances were analyzed. This evaluation revealed the most significant gap in cluster distances occurred in the second cluster, showing a 28.14% fluctuation in heterogeneity (Stage 648 coefficient = 1984.781; Stage 649 coefficient = 2543.296). According to Hair et al. (2016), it was concluded that the natural fluctuation between the first and second clusters alone was insufficient to suggest the emergence of two clusters at the end of the analysis. Furthermore, heterogeneity fluctuations in clusters 3 and 4 were examined, showing substantial fluctuations of 14% and 12%, respectively. Based on these findings, it was concluded that the hierarchical cluster analysis suggested the AMS-derived scores formed three clusters.

In the second stage, a non-hierarchical cluster analysis was conducted to verify the three clusters identified through the hierarchical method and to finalize the cluster centers. The findings confirmed the stability of these clusters, with 75% of students consistently remaining in the same clusters across both analyses. This stability was further corroborated by the double-split cross-validation procedure, which produced an average kappa value of 0.89, signifying substantial reliability.

Table 1 presents the mean scores and standard deviations for the seven AMS sub-dimensions across the three clusters. Cluster 1 includes students exhibiting moderate levels of both intrinsic and extrinsic motivation, coupled with higher levels of amotivation. Cluster 2 consists of students with lower intrinsic and extrinsic motivation, along with the lowest levels of amotivation. Cluster 3 comprises students who demonstrate the highest intrinsic and extrinsic motivation while having the lowest amotivation levels.

**Table 1: Descriptive Statistics of Individual Constructs of AMS**

| | N | | Median | Std. Deviation | Skewness | Kurtosis | Percentiles | | Cronbach' Alpha | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Valid | Missing | | | | | 25 | 50 | 75 | |
| IMTK | 650 | 0 | 3.5 | 0.9450 | -0.31 | -0.48 | 3 | 3.5 | 4 | 0.72 |
| IMTA | 650 | 0 | 3.5 | 1.0475 | 0.37 | -0.20 | 3 | 3.5 | 4 | 0.7 |
| IMTE | 650 | 0 | 3.5 | 1.1241 | 0.16 | -0.50 | 3 | 3.5 | 4.5 | 0.71 |
| EMIN | 650 | 0 | 4 | 0.9509 | -0.31 | -0.58 | 3 | 4 | 4.5 | 0.78 |
| EMID | 650 | 0 | 3.5 | 1.0094 | -0.46 | -0.39 | 3 | 3.5 | 4 | 0.74 |
| EMER | 650 | 0 | 3.5 | 0.9660 | -0.14 | -0.72 | 3 | 3.5 | 4 | 0.7 |
| AMOT | 650 | 0 | 2 | 1.0887 | 0.81 | -0.14 | 1 | 2 | 3 | 0.71 |

The Kruskal-Wallis test was performed to determine if the mean scores of the motivation clusters, based on the AMS sub-dimensions, showed significant differences. This test was utilized to assess

variations among the clusters in the analysis. As shown in Table 2, the third cluster's average scores for the intrinsic and extrinsic motivation subscales are higher than those of the first and second clusters. Conversely, the third cluster's average score on the amotivation scale is lower than that of the first and second clusters.

When comparing the average scores of the first and second clusters, it is evident that the intrinsic and extrinsic motivation scores of the first cluster are higher than those of the second cluster, whereas the average score on the amotivation scale is lower than that of the second cluster. The Kruskal-Wallis test results revealed significant differences among the clusters concerning the average scores of the AMS subscales. Post hoc pairwise comparisons further confirmed that all these differences were statistically significant. Overall, these findings supported the accurate distinction of the three motivation clusters.

A non-parametric ANOVA was performed to evaluate whether the mean scores of the motivation clusters, derived from the seven AMS dimensions, exhibited significant differences. Due to the non-parametric nature of the data, the Kruskal-Wallis test was utilized. As indicated in Table 2, the third cluster had higher average scores for the intrinsic and extrinsic motivation subscales compared to the first and second clusters. In contrast, the third cluster's average score on the amotivation scale was lower than that of the first and second clusters.

When the average scores of the first cluster are compared to those of the second and third clusters, it is observed that the first cluster exhibits moderate intrinsic and extrinsic motivation scores, with an amotivation score higher than that of the third cluster but lower than that of the second cluster. Similarly, the second cluster shows the lowest intrinsic and extrinsic motivation scores among all clusters but the highest amotivation score.

The Kruskal-Wallis test results indicated statistically significant differences ($p < 0.001$) among the clusters in terms of the average scores of the AMS subscales. Pairwise comparisons further confirmed that all differences between the clusters' average scores were significant. These findings validated the accurate distinction of the three motivation clusters. Table 2 presents the average scores obtained from the AMS subscales and the Kruskal-Wallis test results showing whether these scores differ significantly.

**Table 2: Non-Parametric Results Table for Clusters**

| Subscale | Cluster 1 Mean (SD) | Cluster 2 Mean (SD) | Cluster 3 Mean (SD) | Kruskal-Wallis p-value |
|---|---|---|---|---|
| **IMTK** | 3.36 (0.72) | 2.57 (0.72) | 4.39 (0.57) | 0.001 |
| **IMTA** | 3.42 (0.93) | 2.22 (0.58) | 4.09 (0.76) | 0.002 |
| **IMTE** | 3.60 (1.00) | 2.29 (0.74) | 4.24 (0.80) | 0.003 |
| **EMIN** | 3.43 (0.65) | 2.63 (0.83) | 4.53 (0.52) | 0.001 |
| **EMID** | 3.47 (0.66) | 2.12 (0.66) | 4.40 (0.53) | 0.002 |
| **EMER** | 3.23 (0.76) | 2.63 (0.72) | 4.38 (0.60) | 0.001 |
| **AMOT** | 2.38 (1.08) | 1.70 (0.70) | 1.76 (1.15) | 0.005 |

Note: Author's calculation

### 3.2 Interpretation of the Clusters

The clusters were interpreted using the histogram in Figure 1 and the data provided in Table 2. Cluster 3 demonstrates the highest average scores for intrinsic motivation subscales (IMTK = 4.39, IMTA = 4.09, IMTE = 4.24) and extrinsic motivation subscales (EMIN = 4.53, EMID = 4.40, EMER = 4.38). Its amotivation score (AMOT = 1.76) is slightly higher than that of Cluster 2 (AMOT = 1.70) but remains low overall. This indicates that Cluster 3 represents students with the highest academic motivation, with 46.8% of students falling into this category. Cluster 1 shows moderate scores for intrinsic motivation (IMTK = 3.36, IMTA = 3.42, IMTE = 3.60) and extrinsic motivation (EMIN = 3.43, EMID = 3.47, EMER = 3.23). Its amotivation score (AMOT = 2.38) is higher than that of Cluster 2 but lower than that of Cluster 3, representing students with moderate academic motivation, with 34% of students in this group. Cluster 2 shows the lowest scores for intrinsic motivation (IMTK = 2.57, IMTA = 2.22, IMTE = 2.29) and extrinsic motivation (EMIN = 2.63, EMID = 2.12, EMER = 2.63), as well as the lowest amotivation score (AMOT = 1.70) among all clusters, representing students with the lowest academic motivation, with 19.2% of students in this cluster.

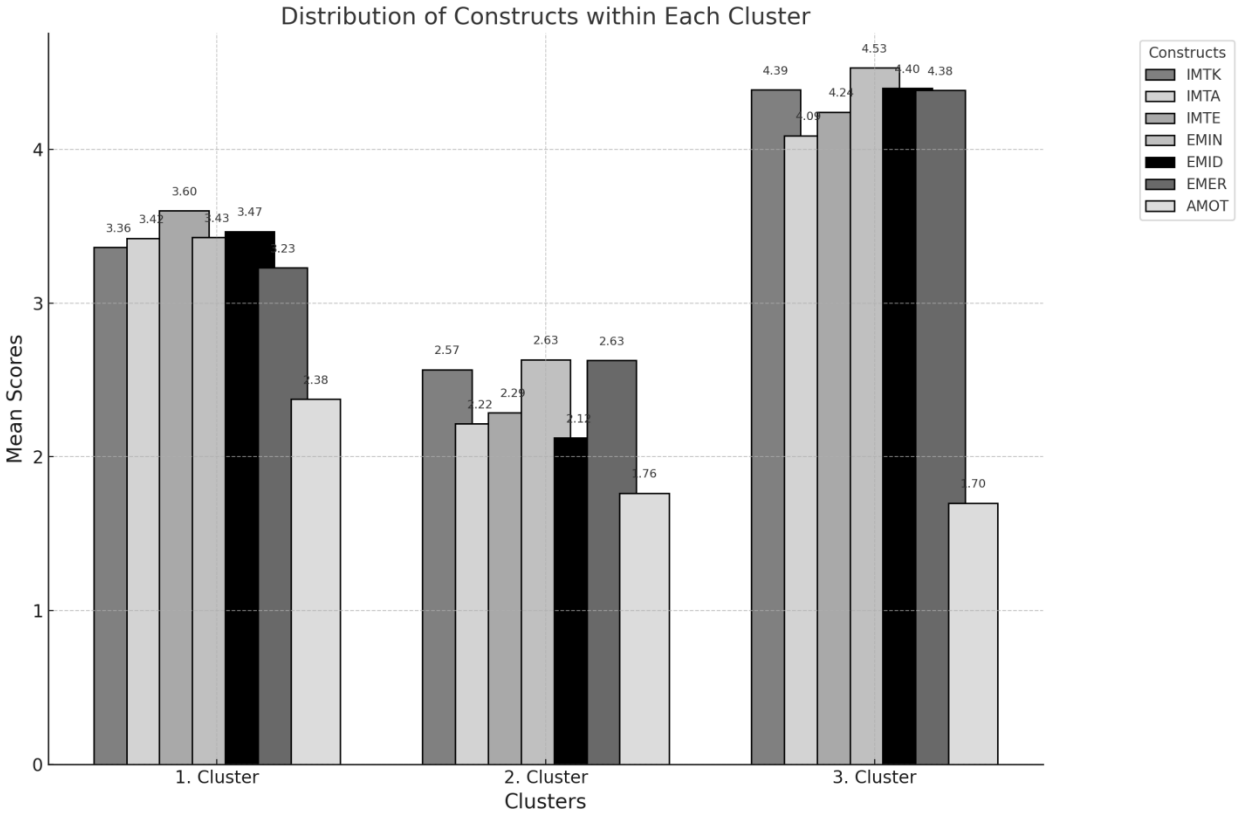


**Figure 1: Cutlers Distribution**

The ordinal logistic regression was run to determine the effect of profile membership (cumulative odds) on intention to pursue post graduate education. The model fitting Summary and goodness of fit is presented in Table 3. The Table 3 shows that the value of chi-square (45.556, $p < .000$) is significant with p-value less than 0.05, and the tests for goodness of fit have p value (Pearson = .061, Deviance = .090) greater than 0.05 thus, it can be confirmed that the model is good fit. The Pseudo R-Square (Table 3) shows the total variations explained by the independent variable in the model. Ordinal logistic regression between motivational profile and intention to pursue postgraduate education is performed.

This Table 4 presents the results of the logistic regression analysis. The thresholds indicate cutoff points on the logit scale, where logit is the natural log of the odds of being at or below a certain level of intention to pursue a postgraduate education. For example, the threshold for intent = 1.00 is -2.769. It shows that when the Motivational Profile has no effect zero, the odds of having an intention level of 1 or below is -2.769. As the intention level increases, the threshold estimates also change, indicating different log odds for each intention cutoff. The level of significance (Sig. < .05) across different thresholds showed statistical significance, and these cutoff points were statistically significant. The 'location' row in the Table 3 presents the coefficient value of the effect of the Motivational Profile on the intention to pursue postgraduate education. The estimate of 0.539 (p < .000) suggests that, while holding other factors constant, the log odds of intention to pursue postgraduate education change by 0.539 for each one-unit change in the motivational profile.

**Table 3: Model Fitting Information**

| Model | -2 Log Likelihood | Chi-Square | df | Sig. |
|---|---|---|---|---|
| Intercept Only | 236.503 | | | |
| Final | 190.947 | 45.556 | 1 | .000 |
| **Goodness-of-Fit** | | | | |
| | Chi-Square | df | Sig. | |
| Pearson | 89.926 | 17 | .061 | |
| Deviance | 92.111 | 17 | .090 | |
| **Pseudo R Square** | | | | |
| Cox and Snell | .068 | | | |
| Nagelkerke | .069 | | | |
| McFadden | .018 | | | |

**Table 4: Logistic Regression Between Motivational Profile and Intention to Pursue Post Graduate Education**

| Estimate | | Std. Error | Wald | df | | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| Lower Bound | | | | Upper Bound | | | | |
| Threshold | [Intent = 1.00] | -2.769 | .285 | 94.638 | 1 | .000 | -3.327 | -2.211 |
| [Intent = 2.00] | -1.866 | .213 | 76.602 | 1 | .000 | -2.284 | | -1.448 |
| [Intent = 2.50] | -1.615 | .200 | 64.923 | 1 | .000 | -2.008 | | -1.222 |
| [Intent = 3.00] | -1.298 | .188 | 47.738 | 1 | .000 | -1.666 | | -.930 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| [Intent = 3.50] | -.593 | .171 | 12.010 | 1 | .001 | -.928 | | -.257 |
| [Intent = 4.00] | .832 | .169 | 24.206 | 1 | .000 | .500 | | 1.163 |
| [Intent = 4.50] | 1.244 | .173 | 51.660 | 1 | .000 | .904 | | 1.583 |
| [Intent = 5.00] | 1.841 | .181 | 103.376 | 1 | .000 | 1.486 | | 2.196 |
| [Intent = 5.50] | 2.128 | .186 | 131.177 | 1 | .000 | 1.764 | | 2.492 |
| Location | Profiles | .539 | .081 | 44.664 | 1 | .000 | .381 | .697 |

## 4. Discussion

The predictive power of motivational profiles in determining student intentions has been extensively examined. Studies such as Leavell (2016) suggest that intrinsic and extrinsic motivations significantly shape students' educational aspirations, a finding echoed by Moreno-Murcia et al. (2013) and Sicilia et al. (2015), who emphasize the role of self-determination in academic persistence and goal achievement. However, Pugh (2018) presents a contrasting view, arguing that motivational profiles alone do not reliably predict graduation intentions, possibly due to methodological or demographic differences. Barkoukis et al. (2021) reaffirm the importance of motivational profiles, highlighting their relevance in enhancing academic persistence.

Cultural and contextual factors also play critical roles. Thompson and Nguyen (2019) highlight that motivation's impact varies across culturally diverse groups, while Davis and Martin (2020) illustrate how online learning environments, with their self-paced flexibility, influence motivational dynamics differently than traditional classrooms. Furthermore, Gomez and Lee (2017) demonstrate the dynamic nature of motivational profiles, showing their evolution over time and the corresponding shifts in students' intentions.

In alignment with these findings, this study identifies three distinct motivational profiles—high, moderate, and low—among bachelor's students, using Self-Determination Theory (SDT) and cluster analyses. High-motivation students exhibit stronger intentions to pursue postgraduate education, while low-motivation student show diminished aspirations. Ordinal logistic regression confirms that intrinsic motivation, driven by the desire for knowledge and growth, is a key determinant of educational intentions, consistent with prior research (e.g., Deci & Ryan, 2000; Valenzuela & Manzano-Sánchez, 2019).

While the findings underscore the importance of motivational dynamics, the study's limitations, including its focus on public universities in Balochistan and a cross-sectional design, constrain generalizability. Future research should include longitudinal studies and diverse institutional contexts to provide a broader understanding. Nonetheless, this research offers actionable insights, advocating for policies and interventions that address socio-cognitive barriers and enhance intrinsic motivation to foster educational aspirations.

## 5. Conclusion and Recommendations

This study provides substantial evidence on how motivational profiles shape the intentions of bachelor's students to pursue postgraduate education. By employing hierarchical and two-step cluster analyses, three motivational profiles were identified, with intrinsic motivation emerging as the strongest predictor of educational aspirations. Students with high motivational profile demonstrated significantly stronger intentions to pursue postgraduate studies.

The research highlights the importance of fostering intrinsic motivation to promote higher education enrollment, particularly in socio-culturally constrained regions like Balochistan. These findings contribute to the broader discourse on educational aspirations by integrating Self-Determination Theory (SDT) and the Theory of Planned Behavior (TPB), offering actionable insights for policy and practice.

The results of this study provide clear evidence that academic motivation significantly influences students' intentions to pursue postgraduate education. Most notably, students in Cluster 3, characterized by high levels of both intrinsic and extrinsic motivation, exhibited the strongest intention to continue their studies. This underscores the need for motivation-based policy interventions tailored to students' motivational profiles. Institutions in Balochistan should adopt AMS-based motivation assessments to regularly identify students with low or moderate motivation levels. These students should be supported through targeted interventions, including academic counseling, personalized mentoring, and motivation-enhancing programs that address their specific needs and barriers.

Students in Cluster 2, who showed low intrinsic and extrinsic motivation, demonstrated the weakest intention to pursue further education. This finding highlights a critical challenge for educational institutions in Balochistan. It is recommended that faculty receive training on how to recognize and respond to varying student motivation levels. Educators should be encouraged to implement classroom strategies that foster student engagement, autonomy, and achievement. In addition, structured academic mentorship programs should be developed to offer consistent support to low-motivation students, helping them build confidence and long-term academic goals.

The ordinal logistic regression analysis further confirmed that motivation levels significantly predict intention to pursue postgraduate studies ($\beta = 0.539$, $p < .000$). This finding supports the development of institutional policies that link financial and academic support to motivational profiles. The Higher Education Commission (HEC) and regional education authorities should establish targeted scholarship schemes specifically for students from underrepresented regions such as Balochistan. These financial incentives can help remove economic barriers and promote equitable access to higher education.

In response to the persistent regional disparity in postgraduate enrollment, it is essential to adopt localized strategies that reflect the unique socioeconomic and cultural realities of Quetta and its surrounding areas. Awareness campaigns should be conducted in schools and colleges across the region to promote the long-term benefits of postgraduate education. These campaigns can include alumni testimonials, career guidance, and motivational talks that resonate with students' backgrounds. Furthermore, peer support networks should be established to encourage collaboration, goal sharing, and a sense of academic community.This study contributes to the literature by being the first to examine the relationship between academic motivation profiles and the intention to pursue postgraduate education among university students in Balochistan, Pakistan. A key strength of the research is its novel focus on identifying motivation clusters and their

influence on educational intentions in an underrepresented region. However, the study has some limitations. The sample was limited to students from public sector universities in Balochistan, which may affect the generalizability of the findings to other regions and types of institutions. Future research should include students from private universities and from other provinces to enhance the scope and applicability of the results. Additionally, while this study focused only on academic motivation, other important factors such as family background, financial situation, job prospects, and differences in academic fields were not examined. These variables may significantly influence students' intentions and should be considered in future studies. Future research may build on this by incorporating the full TPB framework to examine how attitudes, subjective norms, and perceived behavioral control interact with motivation to shape postgraduate intentions.

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# EFFECTIVENESS OF SMALL PRIVATE ONLINE COURSE (SPOC)-BASED FLIPPED CLASSROOM OF LANGUAGE LEARNING AMONG HIGHER EDUCATION STUDENTS

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## ABSTRACT

Higher education has undergone a significant shift towards learner-centered education in recent decades. The flipped classroom model and challenging traditional structures transform the role of teachers from lecturers to facilitators. This method, which is gaining widespread attention, particularly in language courses for postgraduate students, has been explored for its effectiveness. This study focused on postgraduate students at Universiti Putra Malaysia and employed quantitative methods. The research is framed around the Technology Acceptance Model (TAM). The research identifies key factors influencing SPOC flipped classroom effectiveness, including these factors: self-efficacy, teacher behaviour, characteristics of instructional materials, cognitive usefulness, cognitive ease of use, attitude towards learning, and intention to learn. Findings indicate an active impact on efficiency in learning. The research model aligns well with the study's purpose, suggesting avenues for enhancing postgraduate language learning within SPOC flipped classrooms. The study proposes suggestions for enhancing postgraduate language learning in SPOC flipped classrooms.

**Keywords:** Learning effectiveness, Higher education, flipped classroom, postgraduate students, learner-centred.

## 1. Introduction

In the past few years, university teaching has become more focused on the student. Language classes are moving away from traditional lecture-based methods and toward new ones like the flip classroom (Ćirić et al., 2020). In particular, the combination of SPOC and flipped teaching provides a new way to build a more personalized and interactive language learning environment (Fields et al., 2021).

The SPOC-based flipped classroom idea combines regular lectures with online. learning. This is a huge step forward in the technology used in schools. Instead of strict plans and standard training (Hollister et al., 2022), this mixed method lets teachers work around limited time and space to give each student a unique learning experience (Li et al., 2024). Cécilia et al. (2021) found that this approach got students more involved, made them think more critically, and helped them learn more deeply by using interactive and configurable parts. According to Wang et al. (2023), this mix is meant to make a learning setting that is student-centered, proactive, and personalized. Peng and Wang (2024) say that SPOC is necessary to make and give high-quality course materials and make teaching methods better. Using both SPOC and online courses together can make learning more flexible and individualized, get around classroom limitations in terms of time, space, and material, and completely change the way universities teach.

But putting the SPOC-based open classroom into practice brings up a lot of important questions. According to Namaziandost et al. (2020), students who lack confidence in their abilities are less likely to engage with the pre-course content, a crucial component of the SPOC model of flipped classroom learning. Teachers also may not properly guide students through the online parts of the SPOC, which can make it hard for students to connect with the digital materials (Fitria, 2022). Additionally, poorly made SPOC content can be too hard for students to handle, especially when the materials don’t match their specific language learning goals (Jia & Zhang, 2021). These problems are made worse in postgraduate language education, where the literature mostly ignores the need for specialized material and more advanced ways of teaching.

Three important study gaps need to be filled. First, most flipped classroom studies are in STEM fields, but there aren’t many structured studies of language learning (Qi et al., 2024; Jiang et al., 2020). According to Lu and Samah (2024), advanced students' specific needs are still not being taken into account, even though they are better at taking charge of their own learning. Third, empirical evidence remains limited regarding how language-specific factors (teacher conduct, material characteristics, self-efficacy) impact SPOC-flipped classroom success (Chen et al., 2023).

This study addresses these gaps by investigating the effectiveness of SPOC-based flipped classrooms for postgraduate language learners at Universiti Putra Malaysia. Grounded in the Technology Acceptance Model (TAM), the research has three primary objectives: (1) to assess current levels of key learning factors including self-efficacy, teacher behavior, instructional material quality and so on; (2) to validate a TAM-based structural model for this educational context; and (3) to identify the most significant predictors of learning effectiveness. The findings will provide both theoretical insights into the application of TAM in postgraduate language education and propose strategies and recommendations to optimize the efficacy of the flipped classroom paradigm that is based on SPOC

The following questions will guide this investigation:

1. What is the level (self-efficacy, teacher behaviour, characteristics of instructional materials, cognitive usefulness, cognitive ease of use, attitude towards learning, and intention to learn) of SPOC-based flipped classroom language learning?
2. Does the proposed TAM-based structural model exhibit adequate fit indices for explaining learning effectiveness in SPOC-based flipped classrooms?
3. Which factors (self-efficacy, teacher behaviour, characteristics of instructional materials, cognitive usefulness, cognitive ease of use, attitude towards learning, and intention to learn) play a significant role in shaping the efficacy of the SPOC-based flipped classroom learning model?

## 2. Literature review

### 2.1 Flipped Classroom Model in Higher Education

The flipped classroom model has witnessed a surge in popularity within educational settings, particularly in higher education. This pedagogical approach involves students engaging independently with course materials, often through Small Private Online Courses (SPOCs), prior to in-person discussions. Studies have shown that integrating SPOCs in higher education can significantly enhance students' language learning proficiency by promoting active engagement and self-regulated learning (Wu et al., 2018; Xue & Dunham, 2021). The flexibility of this model caters to the diverse needs of postgraduate students, accommodating their busy schedules (Wu, 2023). However, the successful adoption of this model necessitates addressing technical (Wang, 2022) and educational difficulties, stressing the necessity of additional studies examining its effects in the long run.

### 2.2 SPOC-Based Flipped Classroom and Language Learning

The specifics of language teaching provide classroom flipping a special benefit. SPOC-based flipped classrooms have been demonstrated to greatly boost students' language output possibilities and raise interaction time during class by 40 to 60% (Liu, 2021). Students can concentrate on advanced language activities like debates and speeches by learning fundamental facts including vocabulary and grammar in advance (Zhu, 2022). For graduate students, it is a model for satisfying the linguistic needs of the area in professional contexts such as academic writing and conference presentations (Zheng & Lee, 2023).

But there are also big problems with putting it into action. New ways of learning can have a big effect on students' self-efficacy because they can make them feel both empowered and anxious. The study on the daily experiences of students and teachers in Shenzhen, China (Zheng et al., 2024b) shows that this variation can make it harder for students to finish their advanced preparation, especially those who aren't good with technology. It is also looked at how innovative teacher behavior affects students' academic self-efficacy. This shows that while innovative teaching can make students more goal-oriented, it may not directly lead to higher self-efficacy (Maun et al., 2023). Numerous studies have shown that teachers find it hard to adjust to new ways of teaching. Studies on teacher growth and the process of teacher change (Stein & Wang, 1988) show that teachers often have trouble switching from traditional methods to new ones. Itis even

harder to make this change because teachers have to change how they do things in the classroom to fit local situations (Sansom, 2017). Multiple types of graduate students require adaptable lesson plans, especially when using new tools and teaching methods. Implementing digital tools and engaging learning platforms can be hard because they need to be flexible to meet the needs of all students (Tkachenko, 2024) according to a study on innovations in higher education.

### 2.3 SPOC-Based Flipped Classroom and Constructivist Principles

SPOC-based flipped classrooms adhere to constructivist learning concepts by promoting student-centered engagement, active involvement, and collaborative knowledge construction (Chen, 2020). The fusion of Small Private Online Courses (SPOCs) alongside in-person sessions accommodate varied educational preferences and intensifies the process of learning (Wen & Wu, 2022). Technology is critical in this method, so much so that it's essential to understand if learners are receptive to digital educational devices. As a conceptual basis for studying the influence of perceived user friendliness and utility on learners' attitudes and planned use of educational technology, the Technology Acceptance Model introduced by Venkatesh and Davis (2000) is used. Application of the TAM on the SPOC -flipped classroom teaching yields insight about the elements that affect learner involvement with learning and outcome.

### 2.4 The Technology Acceptance Model (TAM) in SPOC-Based Flipped Classrooms

This investigation uses the theoretical framework developed by Davis in the late '80s named TAM to understand how the cognitive usefulness and ease of use of a technological tool affects the learners' embrace and study habits. However, within the space of SPOC based flipped instruction, there are several key components that greatly influence the educational productivity of the scholars; personal agency, pedagogical conduct, quality of teaching aids, mental utility, and mental accessibility. Bandura's concept (1977) of self-efficacy asserts that scholar's strong beliefs in their scholarly abilities have a strong impact on their academic push and achievements. In SPOC-based flipped classroom learning, this belief in one's ability is particularly paramount as it forecasts the preparedness of the scholar to participate with digital interfaces and the ability of the scholar to skillfully operate in an online educational landscape (Zhu et al., 2023). With the transition from traditional to flipped pedagogical approaches, the success of the scholar becomes dependent upon their reliance on education technology.

Within the context of SPOC based flipped classrooms, the role of the educators change dramatically from just the provider of the knowledge to learning facilitators. In such an environment, effective teaching conduct is prompt in its guidance, beneficial in its feedback, and wants to keep schooling students' journey. Everywhere social research has been conducted, we see a high direct correspondence between the amount of the instructor's facilitation and the engagement of students, and consequently their educational outcomes (Cerezo et al., 2024). The highlighted point is that such professional growth programs are important for making teachers capable of solving flipped classrooms.

In SPOCs, the result is an academic achievement through the exact formulation of educational objects. Aspects of these educational tools that clearly affect their cognitive usefulness and ease of use of learners are the engagement capacity, multimedia incorporation, and regulation of mental workload. It is also revealed by academic research that not only does multimedia and interactive enriched content increase students' rate of participation and knowledge acquisition but they also

learn it better (Kabilito, 2024). Thus, curriculum developers and field experts need to work together in the development of educational content related to SPOC.

The TAM framework identifies cognitive usefulness and ease of use as core motivators for the embrace of technological tools in learning settings (Davis, 1989). Within the realm of SPOC-based flipped classroom teaching, the importance of these mental considerations is heightened, as they profoundly affect the learners' intention to engage with the interactive learning interface. The effectiveness of the reversed teaching format is largely determined by the learners' view of the digital aids' contribution to language mastery and the ease of maneuvering through the educational space.

The success of SPOC-based flipped classrooms is significantly influenced by students' attitudes toward learning, as implied by Ajzen's (1991) Theory of Planned Behavior. A positive attitude toward learning leads to more inspiration and participation in the online and direct interaction parts of the flipped method. The research has found that students have done better in such classrooms (Fuertes et al., 2023) for the reason that they have had an optimistic mindset of technology-aided education.

In environments where SPOCs are used to change the dynamic of a classroom, the drive to study is a critical link between the perspectives of learners and the manifestation of their learning activities. According to Ajzen (1991), the actual performance of a behavior will depend on the intention to engage in the behavior, which, in turn, can serve as a suitable means to measure how committed and involved a student is in the class. Frequent use of the learning platform is another indicator that involvement in dialogue is robust, as is its use for accomplishing tasks, and this is associated with a strong language learning aspiration and is significant in improving language skills.

This agrees with TAM (Davis, 1989), whereby perceived usefulness and ease of use will influence the adoption and learning of technology. Ajzen's (1991) Theory of Planned Behavior also supports the inclusion of attitude and intention to learn, as students' intentions serve as strong predictors of their actual engagement in learning tasks. The study tries to verify a TAM-based structural model that incorporates the following dimensions: self-efficacy, teacher behavior, instructional materials, cognitive usefulness, cognitive ease of use, attitude toward learning, and intention to learn in the SPOC-based flipped classroom. By examining these factors, the research seeks to determine their influence on the overall efficacy of SPOC-based language learning among postgraduate students.

### 2.5 The proposed TAM-based structural model

This research developed a structural model based on the Technology Acceptance Model to depict the interplay among self-efficacy, teacher behavior, instructional material characteristics, cognitive usefulness, cognitive ease of use, attitude toward learning, intention to learn, and learning effectiveness. This figure shows these associations (Figure 1), focusing on technology acceptance and its impact on learning actions and results. The objective is to present a comprehensive framework for understanding how SPOC-focused inverted classrooms can facilitate language learning achievement in tertiary education.

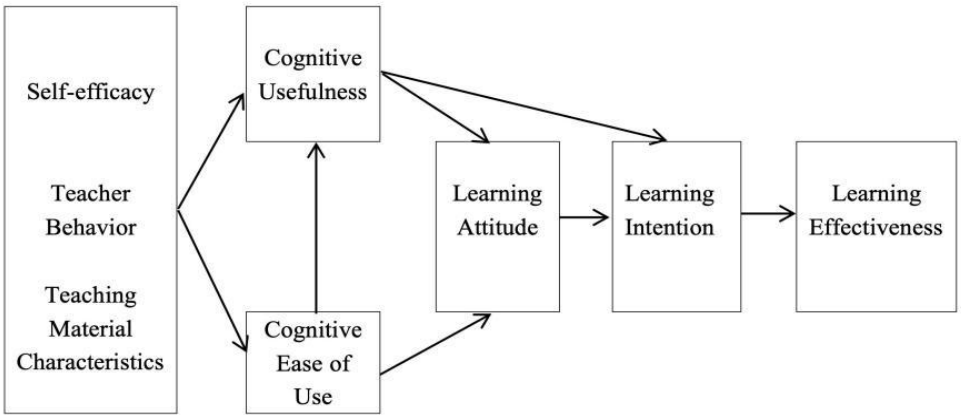


**Figure 1: Seven Dimensions of the SPOC Flipped Classroom Learning Model**

This pedagogical strategy will serve as a tool for Grockit's gain in this ultra-competitive market, and it will be highly impactful for Postgraduate students who are eager for a very flexible and highly specialized educational path. This innovation will transform the SPOC-based flipped classroom into a more dynamic and engaging learning in addition to the fact that this is essential in higher academic learning. This educational method not only gives the students to develop superior critical analysis and troubleshooting skills, but also complies with the main objective of the university sector of preparing the students to battle and solve complicated situations in real lives. Using Structural Equation Modeling (SEM) and the TAM in the investigation, the model under consideration is endorsed. This analytical approach allows these relationships between many components affecting educational outcomes in SPOC influenced reversed learning environments to be explored in detail and understanding on the improvement of teaching in virtual spaces to support purposes of advanced scholarly efforts.

## 3. Methodology

To examine the factors influencing the effectiveness of SPOC based flipped classroom as a learning context in post graduate language learning, this work used Structural Equation Modeling (SEM) through a quantitative correlational research approach. The strength of this approach lies in its flexibility and ability to test complex theoretical frameworks. SEM allows to examine multiple relationships simultaneously, both direct and indirect effects, which is a major step up from basic regression models. An approach to evaluation of correlations among an important number of constructs was mainly accomplished by SEM hypothesis testing and measurement validation (CFA).

### 3.1 Population and sampling

The study group included postgraduate students of Universiti Putra Malaysia who have been enrolled in SPOC based flipped classes. As Estrada et al. (2019) study indicated, if flipped classrooms are effective in improving academic performance, therefore graduate students with their rich academic background can follow this strategy, and, thus, extrapolating from the fact that graduates find it easier to adopt the transition to a flipped classroom and online learning. At the same time, Ogden and Shambaugh (2019) show how these flipped classroom techniques can be adapted to address individual learning requirements, something that might be advantageous for postgraduate students able to be self-directed learners. On the basis of these rationales, the present

investigation has selected postgraduate students as the subject group to evaluate the effectiveness of open classrooms driven by SPOC.

In this study, a simple random sampling technique was used to select students who were registered in SPOC-based flipped classroom language learning programs at the postgraduate level at Universiti Putra Malaysia (UPM). This university has been proactive in integrating online learning into its educational framework, particularly through platforms like PutraBLAST and initiatives such as PutraMOOC. These tools have been instrumental in facilitating blended and fully online courses, especially during periods necessitated by events like the COVID-19 pandemic (Wong & Khambari, 2021). This ensured that all participants would have had enough experience with the SPOC-based flipped classroom so that a more realistic understanding of factors affecting learning efficacy was taken into account.

With a total population of approximately 10,047 postgraduate students at UPM, we aimed to select a sample of 384 participants (Given that the degree of confidence is 95% and the confidence interval is 5%). Each student in the population had an equal chance of being selected. This method guaranteed that our sample was representative of the larger population, allowing us to analyze the effectiveness of SPOC-based flipped classroom learning on individual language learning metrics, dissect the effectiveness of various dimensions, and unravel the intricate interplay between these dimensions. This study mined for participants who completed an online questionnaire through the link, using the collected data consisting of 471 UPM postgraduate students. Every response provided was rewarded with a lottery that the respondent could enter once finished. From among these 410 had one or more experiences with an SPOC based flipped classroom course which left us with 410 valid responses.

### 3.2 Research instrument

The research instrument used in this study was a modified questionnaire originally developed by Zheng (2016), which itself was adapted from various well-established scales. The questionnaire was designed to measure key constructs related to the effectiveness of SPOC-based flipped classrooms, including self-efficacy, teacher behaviour, instructional material characteristics, cognitive usefulness, cognitive ease of use, attitude toward learning, intention to learn, and learning effectiveness.

**Table 1: Reliability and Validity of the Questionnaire**

| Variable | Cronbach's Alpha | KMO |
|---|---|---|
| Self-efficacy | 0.776<br>0.639<br>0.746 | 0.678 |
| Teacher behavior | 0.848<br>0.889<br>0.838<br>0.873 | 0.814 |
| Teaching material characters | 0.718<br>0.744<br>0.690 | 0.712 |
| Cognitive usability | 0.837<br>0.820<br>0.848 | 0.749 |
| Cognitive usefulness | 0.755<br>0.746<br>0.756 | 0.721 |
| learning intent | 0.834<br>0.801<br>0.769 | 0.728 |
| Learning effectiveness | 0.836<br>0.825<br>0.817<br>0.807 | 0.811 |

To ensure the validity and reliability of the adapted questionnaire in the current study, pilot testing has been done prior to issuing the official questionnaire. Table 1 indicates that the questionnaire possesses strong reliability and validity, making it suitable for use as a research instrument in this investigation. The final questionnaire used a 5-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree, to measure participants' perceptions of each construct.

### 3.3 Data collection technique

This study employed online data collection, a popular survey tool for distributing, collecting, and processing questionnaire responses, to collect data. It can automate data collection to ensure accuracy and ease of access for participants and researchers. The questionnaire link was distributed through WeChat and WhatsApp to ensure target group contact.

A six-week data collection phase in November 2023 yielded 471 responses. After excluding 61 incorrect responses due to incomplete answers or failure to meet participation standards, the dataset included 410 valid responses.

### 3.4 Data Analysis

Investigating the study's numerical components requires quantitative data analysis. This is done with AMOS 28.0 and SPSS 26.0, the Social Sciences Statistical Package.

SPSS handles initial data handling and statistical analyses. Each variable's central tendency, dispersion, and score distribution are summarized using descriptive statistics. Inferential statistical tests are performed in SPSS to assess teaching model efficacy hypotheses and analyze correlations. AMOS Version 28.0 was used for SEM and CFA. Before utilizing traditional goodness-of-fit indices, the measurement model was tested by CFA to ensure the observed variables accurately

matched the theoretical components. The model suited well based on predefined criteria after SEM was used to analyze structural links between latent and observable variables.

This analytical approach is implemented to evaluate the overall research model, integrating the relationships between latent and observable variables. The significance of path coefficients is tested to determine the strength and direction of hypothesized relationships.

## 4. Results and findings

### 4.1 Demographic information

**Table 2: Frequency Analysis Results**

| Item | Option | Freq | % | C. % |
|---|---|---|---|---|
| Age | 18-24 | 164 | 40.000 | 40.000 |
| | 25-34 | 161 | 39.268 | 79.268 |
| | 35-40 | 85 | 20.732 | 100.000 |
| Gender | Male | 197 | 48.049 | 48.049 |
| | Female | 213 | 51.951 | 100.000 |
| Semester | 1 | 102 | 24.878 | 24.878 |
| | 2 | 57 | 13.902 | 46.098 |
| | 3 | 132 | 32.195 | 70.976 |
| | 4 | 119 | 29.024 | 100.000 |
| Frequency | Almost every session | 121 | 29.512 | 29.512 |
| | Most sessions | 103 | 25.122 | 54.634 |
| | About half of the sessions | 90 | 21.951 | 76.585 |
| | Few sessions | 82 | 20.000 | 96.585 |
| | Rarely | 14 | 3.415 | 100.000 |

Table 2 shows that from the perspective of the distribution of the age repondents, “18-24” years old constitutes forty percent of the total, 25-34 year olds made up another 39.27% of the sample and 35-40 years old the rest. This finding is consistent with Schmid & Kratzer’s (2022) study on digital natives’ preference for blended learning and may reflect the natural adaptability of young learners to technology-mediated modes of instruction. When it comes to gender, the highest percentage of “Female” constitutes 51.95%. The percentage of males in the sample was 48.05 percent. This indicates that the sample size collected was fairly evenly divided between men and women. The distribution by semster was: 102(24.878%) first semester, 57(13.902%) second semster, 132(32.195%)third semster, 119(29.024%) fourth semster. Over thirty percent of the samples are considered to be “third semester” when seen from the standpoint of semester. A significant portion of the students (29.512%) participates in almost every session, indicating a high level of engagement with the SPOC-based flipped classroom model. Most sessions are attended by 25.122% of the students, and about half of the sessions are attended by 21.951% of the students, showing a consistent level of participation across these categories. Few sessions are attended by 20% of the students, and rarely by only 3.415% of the students, suggesting that the majority of students are actively participating in the SPOC-based flipped classroom. This phenomenon confirms the advantages of SPOC flipped classroom in maintaining learning continuity.

### 4.2 Level of SPOC-based flipped classroom language learning effectiveness (RQ1)

Table 3 presents the descriptive statistics of key dimensions, where the "Level"classification reflects the magnitude of mean scores on a 5-point Likert scale (Joshi et al., 2015):

High = 75th percentile (≈3.75 on 5-point scale)
Moderate = 25th-75th percentile (≈2.5-3.75)
Low = <25th percentile

**Table 3: Descriptive Analysis of Dimensions in SPOC-Based Flipped Classroom**

| | N | Minimum | Maximum | Mean | Std. Deviation | Level |
|---|---|---|---|---|---|---|
| Self_Efficacy | 410 | 1.00 | 5.00 | 3.646 | 0.964 | Moderete |
| Teacher_Behavior | 410 | 1.00 | 5.00 | 3.840 | 0.902 | High |
| Characteristics_of_Instructional_Materials | 410 | 1.00 | 5.00 | 3.815 | 0.909 | High |
| Cognitive_Usefulness | 410 | 1.00 | 5.00 | 3.838 | 0.890 | High |
| Cognitive_Ease_of_Use | 410 | 1.00 | 5.00 | 3.794 | 0.891 | High |
| Attitude_towards_Learning | 410 | 1.00 | 5.00 | 3.888 | 0.803 | High |
| Intention_to_Learn | 410 | 1.00 | 5.00 | 3.863 | 0.910 | High |
| Learning_Effectiveness | 410 | 1.00 | 5.00 | 3.832 | 0.881 | High |

Most dimensions (e.g., teacher behavior, learning attitudes) in Table 2 show mean scores ⩾ 3.75 (High), with low standard deviations (SD < 1.0), indicating uniformly positive perceptions among students. Self-efficacy as an outlier, the moderate mean (3.646) suggests room for improvement, while its slightly higher SD (0.964) hints at potential variability in student confidence levels. This indicates that while most students demonstrate baseline confidence, systematic differences in self-perceived capability may exist. Targeted interventions—such as scaffolded practice or mastery modeling (Bandura, 1997)—should be investigated to reduce this variance.

### 4.3 Structural Equation Modeling

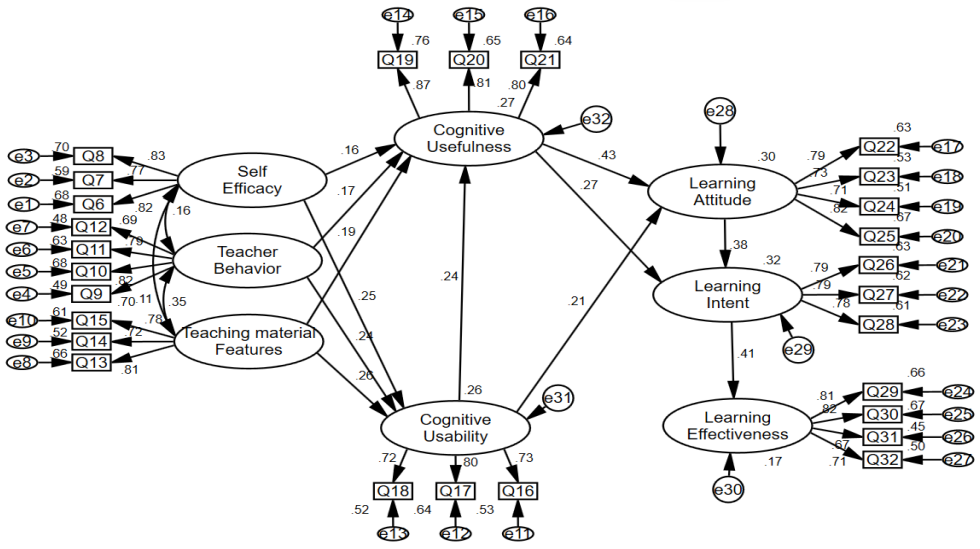


**Figure 2**

**4.3.1 Structural Model Fit:** This section presents the research data regarding the model's fit, indicating to the reader whether the model in this study satisfies the research requirements based on the data. This section will address research question 2: Does the proposed structural model (based on TAM) exhibit adequate fit indices for explaining learning effectiveness in SPOC-based flipped classrooms?

**Table 4: Structural Model Fit**

| Fit Indices | Acceptable Range | Indicators |
|---|---|---|
| CMIN | | 474.900 |
| DF | | 309 |
| CMIN/DF | <5 | 1.537 |
| GFI | >0.9 | 0.922 |
| AGFI | >0.9 | 0.904 |
| RMSEA | <0.08 | 0.036 |
| IFI | >0.9 | 0.967 |
| NFI | >0.9 | 0.910 |
| TLI(NNFI) | >0.9 | 0.962 |
| CFI | >0.9 | 0.966 |
| SRMR | <0.08 | 0.048 |

The data in Table 4 indicates that the CMIN/DF ratio is 1.537, the GFI, AGFI, NFI, TLI, IFI, and CFI exceed 0.9, and the RMSEA is 0.036, rather than 0.08. This model can be considered to have an adequate fit; as most fitting indicators meet the norms of general SEM research.

**4.3.2 Factors influence the effectiveness of SPOC:** This section discusses the factors that determine the effectiveness of the SPOC-based flipped classroom paradigm. This section will address RQ3: Which factors (self-efficacy, teacher behaviour, characteristics of instructional materials, cognitive usefulness, cognitive ease of use, attitude towards learning, and intention to learn) play a significant role in shaping the efficacy of the SPOC-based flipped classroom learning model?

It can be concluded from the above table 5 that Self_Efficacy has a significant positive effect on Cognitive_Usability in this study ($\beta$=0.250, $P < 0.001$). Teacher_Behavior had a significant positive effect on Cognitive Usability ($\beta$=0.240, $P < 0.001$). Teaching_material_Features had a significant positive effect on Cognitive_Usability ($\beta$=0.260, $P < 0.001$), and the R square of the model interpretation was 26.4%. Self_Efficacy had a significant positive effect on Cognitive Usefulness ($\beta$=0.161,$P < 0.01$). Teacher_Behavior had a significant positive impact on Cognitive_Usefulness ($\beta$=0.172,$P < 0.01$) Teaching_material_Features had a significant positive impact on Cognitive_Usefulness ($\beta$=0.1) 85,$P < 0.01$), Cognitive_Usability has a significant positive impact on Cognitive_Usefulness ($\beta$=0.238,$P < 0.001$), and the R square of the model interpretation is 27.2%. Cognitive_Usability has a significant positive influence on Learning_Attitude ($\beta$=0.428,$P < 0.001$) Cognitive_Usability has a significant positive influence on Learning_Attitude ($\beta$=0.211,$P < 0.0$) 01), the model interprets R square as 30.4%. Learning_Attitude has a significant positive impact on Learning_Intent ($\beta$=0.379,$P < 0.001$), Cognitive_Usefulness has a significant positive impact on Learning_Intent ($\beta$=0.273,$P < 0.001$). The model interprets R square as 32.5%. Learning_Intent has a significant positive impact on Learning_Effectiveness ($\beta$=0.406,$P < 0.001$), and the interpreted R square is 16.5%.

**Table 5: SEM Path Coefficient**

| | | | Estimate | S.E. | C.R. | P | SE | R2 |
|---|---|---|---|---|---|---|---|---|
| Cognitive Ease of Use | <--- | Self_Efficacy | 0.236 | 0.054 | 4.360 | *** | 0.250 | 0.264 |
| Cognitive Ease of Use | <--- | Teacher_Behavior | 0.371 | 0.097 | 3.825 | *** | 0.240 | |
| Cognitive Ease of Use | <--- | Characteristics_of_Instructional_Materials | 0.296 | 0.072 | 4.108 | *** | 0.260 | |
| Cognitive Usefulness | <--- | Self_Efficacy | 0.156 | 0.054 | 2.918 | 0.004 | 0.161 | 0.272 |
| Cognitive Usefulness | <--- | Teacher_Behavior | 0.273 | 0.049 | 2.894 | 0.004 | 0.172 | |
| Cognitive Usefulness | <--- | Characteristics_of_Instructional_Materials | 0.216 | 0.070 | 3.079 | 0.002 | 0.185 | |
| Cognitive Usefulness | <--- | Cognitive_Ease_of_Use | 0.244 | 0.068 | 3.599 | *** | 0.238 | |
| Attitude towards Learning | <--- | Cognitive_Usefulness | 0.321 | 0.046 | 7.018 | *** | 0.428 | 0.304 |
| Attitude towards Learning | <--- | Cognitive_Ease_of_Use | 0.162 | 0.047 | 3.435 | *** | 0.211 | |
| Intenttion to Learn | <--- | Attitude_towards_Learning | 0.393 | 0.068 | 5.758 | *** | 0.379 | 0.325 |
| Intenttion to Learn | <--- | Cognitive_Usefulness | 0.213 | 0.049 | 4.351 | *** | 0.273 | |
| Learning Effectiveness | <--- | Intention_to_Learn | 0.417 | 0.060 | 6.911 | *** | 0.406 | 0.165 |

Many important discoveries and model explanatory power are identified. It was found that cognitive usefulness and ease of use are important factors in technology acceptance models (TAM) (Zobeidi et al., 2023) and cognitive usefulness has a big effect on the explained variation of learning attitude (30.4%). Behavioral intention explains 32.5% of variance, compared to 25% in traditional TAM research (Kalayou et al., 2020). This suggests that adding self-efficacy and social impact can increase the model's prediction power (Kumar et al., 2020).

SPOC flipped classroom instruction should prioritize practical presentation and interactive teaching material design, according to the results. Research shows that system qualities and the user interaction improve user engagement and intention to use educational technologies (Al-Sayid & Kirkil, 2025). Technical operation instructions and value explanations also affect perceived simplicity and usefulness, which affects behavioral intention (Al-Emran et al., 2020). Structured task design boosts learners' self-efficacy and encourages technology use (Kumar et al., 2020). In conclusion, cognitive usefulness, self-efficacy, and interactive design can improve educational models that predict learning attitudes and behavioral intentions. This provides a clear direction for optimizing SPOC teaching.

## 5. Discussions

This study systematically examines the application effect of SPOC flipped classroom in postgraduate language education.

### 5.1 Applicability of the Technology Acceptance Model (TAM)

In terms of the applicability of the technology acceptance model (TAM), the study confirmed the significant influence of cognitive usefulness ( β =0.321) and cognitive ease of use ( β =0.244) on learning attitudes, a finding that validates the classical theory of Davis (1989). What is more noteworthy is that the influence of teacher behavior ( β =0.371) transcends the technical factors themselves, which is in sharp contrast to the relevant research in STEM fields (Mutambara & Bayaga, 2021), and supports Khajavy et al. (2021)'s view on the particularity of language education. The statistical analysis revealed that the graduate student group exhibits a distinct sensitivity in perceiving teaching value, as evidenced by the attitude ( β =0.393) and intention ( β =0.417) results, hence corroborating the findings of Johnson and White (2021) in their study involving a student cohort.

### 5.2 Teacher behavior and self-efficacy as key factors

In terms of teacher behavior and self-efficacy, the study found that teacher behavior was the strongest predictor (β = 0.371), which strongly supported Farhana Jumaat & Che Lah's (2022) findings on the critical role of teacher scaffolding in technology-enhanced language learning. At the same time, the 'moderate' level of self-efficacy (M = 3.646) found in the study contrasts interestingly with the generally higher levels of technical confidence reported in STEM contexts (Martha, et al., 2023), providing empirical support for Zheng et al.'s (2024a) recently proposed language learning anxiety in digital environments' theory. Together, these findings suggest that pedagogical competence and learner psychological factors may outweigh purely technical considerations in determining the success of flipped language classrooms.

### 5.3 The importance of learning materials to achieve high learning effectiveness

The findings regarding instructional material design are equally significant. The data revealed that material characteristics ( β = 0.296) significantly contributed to cognitive usefulness. While high-quality materials (M = 3.815) showed a positive correlation with learning outcomes, the study emphasized that these materials must synergize with teachers' scaffolding. These results not only validate Zhambylkyzy & Molotovskaya's (2022) theory of 'authentic materials facilitating language output', but also indicate that relying solely on content quality is insufficient - it must be combined with progressive task design strategies. The findings generally align with Mayer's (2020) multimedia learning principles but particularly highlight the need for enhanced 'social presence' in language SPOCs through designs like virtual peer assessment. This perspective contributes meaningfully to Huang & Annamalai's (2024) study on learning engagement. Together, these results present concrete guidance on material design in language-focused SPOC courses.

### 5.4 Cognitive Usefulness is more influential than Cognitive Usability in shaping attitudes and motivation

The results also suggest that cognitive usefulness has stronger effects than cognitive usability on students' attitudes and motivation (β =0.321 vs. β =0.244). However, even with the ease of use remaining an important thing that supports technological adoption, students value the perceived benefit of using a system for learning outcomes over its usability. That means that people in modern language education spaces care more about how technology helps them do better at school

and learn in general, as opposed to just how easy it is to use. For this reason, educational technology must be designed to optimize cognitive usefulness in terms of the integration of meaningful content, pedagogical support, and interactive learning features without attaining technical improvements.

Findings also show that cognitive usefulness plays a stronger role in shaping students' attitudes and motivation than cognitive usability (β = 0.321 vs. β = 0.244), as Venkatesh and Davis (2000) derived with their extended Technology Acceptance Model. Ease of use is still one of the important factors in terms of promoting the adoption of the technology (Mayer, 2019), but students will choose a system they perceive as beneficial in terms of achieving their learning outcomes rather than on the basis of system usability. It means that students in language education environments are most attentive not to the ease of use of technology in their learning but rather its contribution to academic achievement and learning experience, which is substantiated in current educational AI research (Hwang et al., 2020). Thus, educational technology should create, whenever possible, educational hotness through its capacity to present relevant material, add pedagogical assistance, and address speculative findings.

**5.5 Implications**

The following theoretical implication may be drawn from the empirical findings of this study. First, they reinforce and extend the Technology Acceptance Model (TAM) by demonstrating that cognitive usefulness (β=0.321) consistently outweighs ease of use (β=0.244) in shaping learning attitudes and motivation, particularly in skill-based disciplines like language education. This challenges the common assumption in STEM-focused flipped learning research (Gong et al., 2023) that usability factors dominate acceptance decisions. Second, the study contributes to the Theory of Planned Behavior showing that postgraduate students' plans to behave are mostly influenced by how much they value learning ($^2$=0.417) rather than how convenient the technology is. Third, the results suggest the need for discipline-specific adaptations of TAM, where human factors (teacher behavior, β=0.371) and authentic material design (β=0.296) serve as critical external variables that enhance core TAM constructs in language learning contexts.

The findings of this study have important, practical implications for using the SPOC-based flipped classroom instructional model in teaching and learning. Given that teacher behavior exerts a stronger influence than technical factors in shaping students' learning attitudes in this study, educators should prioritize active instructional engagement in SPOC flipped classrooms. It includes personalized feedback, scaffolding techniques and interactive teaching methodologies for the maximum student motivation and participation (Yaseen et al., 2025). The focus on pedagogical strategies rather than mere technical expertise should be emphasized in the training programs in order to ensure that an instructor adequately facilitates learning in the context of technology-enhanced environments. Teachers should take into account their students' diversity of experiences and needs, when creating and applying the model. It might necessitate helping more technophobic older students or adjusting to be more learner-friendly. In group projects and practical activities, teachers should facilitate and guide. To succeed, the flipped classroom needs high-quality, easily accessible teaching resources.

Learning materials should be high-quality and authentic, but also designed to work in concert with teacher guidance. As Engeness (2022) said, educators should be trained in creating or curating materials that align with progressive task design principles, ensuring that content is both engaging and pedagogically sound. Designers should develop authentic, discipline-specific resources (e.g.,

academic writing templates and debate simulations) rather than generic content and incorporate multimedia elements (e.g., video annotations and interactive exercises) to enhance engagement while maintaining pedagogical value.

The confirmation of TAM's applicability in SPOC flipped classrooms for postgraduate language education suggests that educators should focus on enhancing the perceived usefulness and ease of use of the technology. However, the significant influence of teacher behavior underscores the necessity for teacher training programs specifically tailored to integrate technology effectively into language instruction. This may involve workshops on how to leverage SPOC platforms to enhance learning experiences and encourage interaction. Additionally, since graduate students are particularly sensitive to the value of teaching, according to what Jia found in 2022, educators should clearly communicate the benefits of SPOC technology to foster positive attitudes and intentions towards its use.

## 6. Limitations and Suggestions for Future Study

To ensure the flipped classroom works well, it's crucial to have high-quality instructional resources that are easy to access. Recent studies show that the SPOC platform makes it easier to present interactive, multimedia-rich content, which greatly improves the learning experience (Srivastava & Srivastava, 2024). However, the present study did not examine the possible impacts of students' academic specializations, which could have resulted in varying learning experiences and outcomes among different disciplines. Future studies need to conduct comparative studies across disciplines (e.g., comparing language learners with engineering students) to identify discipline-specific barriers and enablers.

The flipped classroom model that uses SPOC depends significantly on teachers. Their skill in becoming facilitators leading discussions, handling group dynamics, and offering tailored support greatly impacts student outcomes (Xu, et al., 2023). To improve teachers' facilitation skills, we should create thorough professional development programs. These programs ought to concentrate on enhancing instructors' skills in managing various small group scenarios and making the most of digital resources.

Students' involvement and achievement in a SPOC-based flipped classroom depend on self-efficacy. Results from this study demonstrate that self-efficacy for moderate and relationships fall behind the moderate. Increasing the confidence and motivation of students can be done through approaches like scaffolding and gamification, e.g., achievement milestones or badges, continuous feedback, and tailored learning pathways. Furthermore, ensuring that these interventions are individualized to aspects of different academic areas is more effective.

Real time feedback mechanisms are crucial for instructing in a way to address the needs of the individual student (Pinheiro et al., 2021). Timely support is provided through automated feedback tools with organized teacher feedback sessions so that students receive help when they need it as they adapt their learning strategies (Cassano et al., 2023). Additionally, research regarding how responses in behaviour and preferences for feedback from feedback differ between the different academic disciplines will aid in the development of better and more effective tailored feedback systems.

In sum, a SPOC-based flipped classroom model has the potential to increase learning outcomes in higher education. Strategies to maximize this approach can be achieved through the provision

of high-quality teaching resources, effective teacher role support, and maximum self-acquisition of efficacy. Research in this topic should ideally compare the differences in final learning outcomes and student satisfaction between these strategies and others in the future.

## 7. Conclusion

Thus, this paper applied a TAM and an SEM on postgraduate language acquisition by using SPOC-based flipped classrooms. The study found that learning attitudes, learning intentions, and learning outcomes were all affected by teaching support factors like teacher behavior and the quality of teaching materials, as well as technology acceptance factors like how useful and easy to use technology was seen to be. This helped us learn more about how SPOC flipped classrooms work and how to make them work better. If this approach to language teaching results in the students in higher education being able to not only learn but also participate and constitute critically of it, then this will imply the findings. Teacher demeanor, quality of teaching resources, cognitive relevance and self-efficacy are some important elements of educational achievement. These elements were formed by the level of the students' drive and attitude towards studying. Thus, the success of the SPOC-based flipped instruction depends on its level of coordination of the instructional design, teacher support, and student preparation, as well as the sophistication of the technology. This provides a theoretical framework as well as a practical road map for applying this flipped learning style in higher education to provide real value in the language acquisition. The results agree with the implication that all graduate students should learn language using technology in something in a more individualized, engaging, and efficient way using technology, which should not be seen as an end in itself but rather as a tool.

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# NAVIGATING TIME: THE INTERPLAY OF TIME MANAGEMENT, STRESS AND ACADEMIC PERFORMANCE AMONG UNIVERSITY STUDENTS

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## ABSTRACT

Efficient time management, stress management, and academic success are crucial for a successful undergraduate experience. This study aimed to examine the relationships and influences of time management including short-range planning, long-range planning, and time attitudes and stress on academic performance among undergraduate students. This quantitative-correlational research was carried out among university students in Universiti Putra Malaysia. A multi-stage random sampling method was used to get 406 participants who completed a questionnaire focused on the Time Management Questionnaire and the Depression, Anxiety and Stress Scale (DASS-42). The findings showed that short-range planning and time attitudes positively correlated with academic performance, while stress had a negative effect. Regression results indicated that time management was a stronger predictor than stress, accounting for 13.7% of the variance in academic performance. The study concludes that time management and stress significantly influence academic performance, with time management emerging as the stronger predictor, highlighting the need for resources and support services to help students manage their time and stress effectively. Furthermore, the results suggest that future research should explore other possible factors that could impact academic performance.

**Keywords:** productivity**,** mental health**,** undergraduate student

## 1. Introduction

In the modern era, a climate of intense competition permeates various sectors, particularly in higher education institutions. Within these institutions, academic performance plays a critical role in determining the classification of degrees that students receive upon graduation. Furthermore, exceptional academic achievement is a vital prerequisite for graduates aiming to secure lucrative employment and progress in their careers (Bakar et al., 2013; Ezenwoke et al., 2020).

Poor academic performance has become arguably the most significant threat to higher education institutions today. It is closely linked with student attrition, which remains a scourge in institutions of all kinds and sizes. Unlike other barriers to higher education, such as institutional capacity or finance, attrition due to poor academic performance is both stealthy and difficult to control (Al-Zoubi & Younes, 2015; Napoles et al., 2023). The effects of academic underachievement extend far beyond the classroom walls. Academic achievement is highly linked to increased student retention, better job prospects, improved finances, and on-time graduation. A recent study found that academically successful students are more likely to have higher salaries, better job benefits, and more advancement possibilities (Hailu et al., 2024; Ezenwoke et al., 2020; Gilar-Corbi et al, 2020). Apart from this, these students also become more socially active, less anxious and depressed, have higher self-esteem and confidence, and are less likely to engage in substance abuse (Roshanisefat et al., 2021).

With the shifting dynamics of higher education, academic success is now a complex and multifaceted concept that goes beyond intelligence or knowledge in a subject area. Students' performance is affected by different academic and non-academic interconnected variables (Cao et al., 2024; Al-Zoubi & Younes, 2015). Thus, the pursuit to understand what explains academic success has been a growing concern among educators, policymakers, and institutions. Last but not least, the academic performance of students is not only a reflection of individual potential but also a very significant reflection of institutional effectiveness. It has long-term implications for the future of the students and the overall well-being of society, making it extremely critical to identify and address the determinants of academic performance (Pandey, 2023; Agormedah et al., 2021).

Malaysia witnessed a 4.7% increase in the number of graduates, reaching a historic high of 5.61 million, up from 5.36 million in 2020 (Department of Statistics Malaysia, 2020). Despite this encouraging trend, there has been a concerning rise in dropout rates among Malaysia's public higher education institutions. In 2022, 17,613 undergraduates did not complete their tertiary education, marking an increase of over 4,000 dropouts compared to 2020. This escalation can be attributed to various factors, including academic failures and health-related issues. Remarkably, a private university reported a dropout rate exceeding 14% within just six months in the same year (Ministry of Higher Education Malaysia, 2022).

The quality of higher education institutions is influenced by a multitude of factors, with student academic achievement ranking among the most critical. The quality of students' academic performance is contingent upon various academic and non-academic factors (Agormedah et al., 2021; Adams & Blair, 2019). Notably, time management represents a non-academic factor that significantly impacts academic performance. Time is a vital element of daily life as it can exert a pronounced influence on individual or group success, such as that of students (Wolters & Brady, 2021; Biwer et al., 2021).

García et al. (2004) have underscored the need for instructional proposals that can enhance

college students' time management behaviors. To this end, the authors have identified three subcomponents of time management that are critical for students to develop. These subcomponents encompass short-range planning, long-range planning, and attitudes toward time. Short-range planning is concerned with managing tasks and time over a period ranging from one day to one week. Long-range planning, on the other hand, aims at achieving academic objectives over the academic year. Attitudes towards time refer to how students perceive their control over time and their self-efficacy. It is noteworthy that adopting these time management practices can yield a positive impact on academic performance (Adams & Blair, 2019; Wolters & Brady, 2021). Napoles et al. (2023) and Pandey (2023) emphasize that effective time management is a crucial component of academic success, as poor time management can adversely impact academic performance.

Efficient time management is a critical factor for students to achieve optimal performance while operating within a restricted time frame. To accomplish this objective, students must set objectives, prioritise their tasks, and track the utilisation of their time. The acquisition of effective time management skills is instrumental in enhancing academic productivity and performance while mitigating the likelihood of depression, anxiety, and stress among students (Aeon et al., 2021; Ahmad et al., 2020; Roshanisefat et al., 2021). Moreover, effective time management skills contribute to the maintenance of a healthy work-life balance (Nesam, 2021). According to Vijay (2023), the prioritization of tasks enhances work and study satisfaction, leading to reduced inefficiencies, anxiety, and stress. Furthermore, Lozano-Rodríguez et al. (2020) posit that the allocation of time, particularly among university students, is essential in enhancing productivity and academic performance.

However, numerous students encounter difficulties in regulating both their academic and external lives (Adams & Blairs, 2019; Biwer et al., 2021), which often culminates in poor time management, inadequate sleep patterns, and heightened stress levels (Knowlden & Naher, 2023). Ineffective time management behaviors, such as improper allocation of time or last-minute cramming for examinations, are sources of stress and poor academic performance (Nesam, 2021; Knowlden & Naher, 2023; Bok et al., 2024) A study conducted by Rahimi and Hall (2021) unveiled that 46% of undergraduate students and 60% of graduate students habitually defer academic tasks despite the likelihood of unfavorable outcomes. Similarly, Theobald et al. (2021) noted that university students typically resort to cramming and "pull-nighters" before an academic task. Based on these findings, students must allocate their time effectively, meet deadlines, and prioritize their academic responsibilities (Wolters & Brady, 2021).

The growing complexity of higher education, which requires students to complete more academic programs in less time, contributes to stress levels. Between 12.9% and 21.6% of university students experience moderate to severe stress, with some top research universities reporting even higher rates of 37.7% in 2018 and 42.2% in 2020 (Nanthakumar, 2022). Stress can elicit both positive and negative emotions. While excessive stress can lead to negative emotions and affect academic performance, effective stress management can motivate individuals to be more proactive and achieve more.

Generally, time management and stress are known to have several positive effects on academic performance, with early evidence supporting this relationship. Azmah et al. (2022) found that higher scores in long-range planning were inversely related to academic performance among first-year medical students. Mariano et al. (2022) revealed a significant relationship between the level of time management and the academic performance of working students. Similar results have been observed regarding the relationship between time management and academic

performance among radiology technology students. Literature including undergraduate students revealed that stress affects academic performance, as lower stress shows better academic performance (Man et al., 2021; Iqbal et al., 2021; Elias et al., 2011).

Several studies conducted at Universiti Putra Malaysia (UPM) have shown that time management and stress are ongoing problems in medical or international students (Azmah et al., 2022; Dhubyan & Aminuddin, 2016; Elias et al., 2011). Elias et al.'s studies found that UPM undergraduate students experience high rates of stress that can negatively impact academic performance. Similarly, studies on the time management skills among foreign and medical students yielded inconclusive findings regarding their effects on academic performance (Azmah et al., 2022; Dhubyan & Aminuddin, 2016).

At the institutional level, UPM has consistently been shown to adhere to a spirit of academic excellence and the development of well-rounded, globally competitive graduates. Following its educational reforms and strategic plans, UPM has adopted the Outcome-Based Education (OBE) approach in a bid to improve learning outcomes and graduate employability. But despite this, in-house assessments still reflect concerns on students' soft skills, e.g., managing time and dealing with study pressure (Mohayidin et al., 2008). These concerns translate to the fact that despite structural efforts, UPM students' experience remains tainted by individual issues that influence learning outcomes.

Further, UPM aims to maintain its position as an international institution, there is a need to address these student-centered issues. The lack of research on the institutional level concerning the dynamics between time management, academic stress, and performance holds the university back from coming up with tailor-made programs of support. Existing research is not generalizable to the larger undergraduate population, future studies are needed to study the effects of time management and stress on overall academic performance in other fields in UPM (Azmah et al., 2022; Dhubyan & Aminuddin, 2016; Elias et al., 2011; Mohayidin et al., 2008). This study aims to complement that gap by investigating students from social science faculties, offering a focused but pertinent perspective that could be used as feedback to student support policies for similar academic settings at UPM.

In light of the growing concerns surrounding time management and academic stress among undergraduates at Universiti Putra Malaysia (UPM), this study aims to address an important gap in existing research. While prior studies at UPM have explored these variables either in isolation or within specific student groups, this research seeks to examine their combined effects across a broader range of academic fields. Therefore, this study aimed to examine the relationships and predictive influence of time management (including short-range planning, long-range planning, and time attitudes) and stress on academic performance among undergraduate students at Universiti Putra Malaysia. By examining these related factors, the research aims to provide valuable insights into how short-range planning, long-range planning, time attitudes, and stress levels influence students' academic performance. Understanding these direct relationships can help inform targeted interventions and support systems that promote effective time management and stress regulation strategies. Ultimately, the findings from this study have the potential to enhance students' well-being and academic success, contributing to the development of a more supportive and productive learning environment within the university.

## 2. Literature Review

### 2.1 Self-Regulated Learning (SRL) Theory

This research is guided by Zimmerman's (2000) Self-Regulated Learning (SRL) Theory, where

learning is conceived as a cycle of behavior regulation, cognition, and emotions that take place in three phases: forethought, performance, and self-reflection. The theory offers a comprehensive framework to understand how students manage both behavioral and emotional processes to achieve academic goals.

In this framework, time management is seen as a key behavioral strategy applied primarily in the forethought and performance phases, where students set plans, organize, and monitor their academic activities. To operationalize this construct, the study employs the Time Management model of Britton and Tesser (1991) that defines time management in terms of three interrelated components: short-range planning, long-range planning, and time attitudes. According to Britton and Tesser (1991), short-term planning involves setting and prioritizing activities or tasks for an immediate period, such as a day or a week, while long-term planning focuses on extended periods, such as half-yearly or yearly goals. Time attitudes encompass the belief that one is in control of one's own time, effectively managing it, and using it productively. Although these components originate outside of Zimmerman's Self-Regulated Learning (SRL) Theory, they are conceptually aligned with the SRL framework. Particularly within the forethought and performance phases, where goal-setting, planning, and time attitudes are key elements of effective self-regulation.

In addition, stress in the SRL model is also considered to be a motivation and affect factor emerging in the performance and self-reflection phases. Excessive stress may impede students' ability for self-regulation through compromising their concentration, emotional control, and persistence. Stress in the present study is measured by the Stress Subscale of the DASS-42 (Lovibond & Lovibond, 1995), which is a widely used and locally developed instrument.

In synthesizing these perspectives, the current research model includes the dynamic interplay between time-related behavior and emotional response in shaping academic performance.

### 2.2 Time Management and Academic Performance

Effective time management plays a crucial role in academic performance (Wolters & Brady, 2021; Biwer et al., 2021). It enables students to organize their daily activities efficiently, ensuring they complete their academic tasks on time. The correlation between time management and academic performance has been extensively studied, with a focus on diverse educational settings and student demographics. In their study conducted in Malaysia, Bakar et al. (2023) aimed to identify factors contributing to students' academic performance in higher learning institutions. The study included 169 students from various faculties at UiTM, utilizing online questionnaires. The findings highlighted learning ability, learning effort, and time management as key factors influencing academic achievement. Effective time management, as emphasized by Tesfaye (2019), plays a crucial role in helping students achieve high academic performance.

Azmah et al. (2022) investigated the relationship between learning styles, time management skills, and pharmacology academic performance during the COVID-19 pandemic with 86 first-year medical students at Universiti Putra Malaysia (UPM). The Time Management Questionnaire (TMQ) by Britton and Tesser (1991) was used for data collection. The study found no significant association between time attitude and short-term planning with pharmacology assessment scores. However, a low negative correlation was observed between long-range planning and pharmacology assessment results ($p = 0.001$), suggesting that better long-term planning did not guarantee improved pharmacology assessment outcomes.

Hamzah et al. (2014) explored the relationship between time management skills and academic performance among 150 final-year Bachelor of Business Administration students at Universiti Utara Malaysia (UUM). Data collection involved a questionnaire assessing personal academic

planning, control, and assignment handling. The study revealed a significant contribution of time management to students' academic performance (beta value = 0.515, p-value = 0.000).

In their study conducted in Indonesia, Pangastuti et al. (2024) aimed to identify stress levels and coping mechanisms among first-year medical students, specifically in BMS courses, involving 89 first-year medical students during online basic medical science courses. Data collection involved the Perceived Stress Scale (PSS-10) questionnaire, BMS course grades, and open-ended questions. The findings highlighted coping strategies centered around time management, study techniques, and prioritizing emotional and physical well-being. Students initially focus on effective time management and study strategies, prioritizing tasks, studying materials in advance, and utilizing proactive study methods to remain organized amidst their coursework.

Jane (2024) examined 3772 students enrolled in various board programs at NEUST Sumacab-Main Campus in the Philippines to explore the relationship between academic performance and various non-cognitive factors. The findings revealed a strong positive correlation between time management and academic performance ($r = .566$, $p = .002$). The findings of the study revealed a significant relationship between the students' level of time management and their academic performance. This suggests a strong positive link between effective time management practices, such as goal setting, task prioritization, and using tools like to-do lists, and improved academic performance among students. On the other hand, inadequate time management habits like excessive social media use, disorganized schedules, and unclear goals can impede academic success.

Mariano et al. (2022) conducted a study to examine the relationship between time management skills and academic performance among working students in an open high school program. The sample comprised 85 students from Mariano Peralta National High School. The researchers used the Effective Time Management Skills and Practices questionnaire to collect the data. The findings of the study revealed a significant relationship between the level of time management and the academic performance of the students. This relationship was found to be statistically significant at a 5% level of significance.

Abdulwahed et al. (2021) also conducted a study to investigate the impact of time management on the academic performance of 132 diagnostic radiology technology students at King Abdulaziz University (KAU) in Saudi Arabia. The researchers administered a self-designed questionnaire consisting of 22 questions to collect the data.

Specifically, the study found that 36.7% of students with a GPA of 4-4.5 strongly believed that their academic performance was negatively affected by poor planning (p-value = 0.005). Additionally, 69.2% of students with a GPA of 4.5-5 strongly agreed that they consistently met their deadlines (p-value = 0.005). Moreover, 66.3% of students with a GPA of 4.5-5 agreed or strongly agreed that they made use of to-do lists or calendars (p-value 0.047). These findings suggest that effective time management practices were associated with better academic performance among the students.

### 2.3 Stress and Academic Performance

Stress is a prevalent phenomenon among students, influencing their academic performance and overall well-being (Bibi et al., 2022). This literature review delves into multiple studies conducted in Malaysia, Peru, and Pakistan, examining the impact of stress on academic performance among higher institutions and undergraduate students. Through a comprehensive analysis of these studies, this review seeks to contribute valuable insights to the existing literature on stress and academic performance.

In their study conducted in Malaysia, Abdullah et al. (2022) aimed to assess the impact of fear,

stress, well-being, teacher and parents' support on undergraduates' academic performance during the COVID-19 pandemic. The researchers utilized the full version (14 items) of the Perceived Stress Scale to evaluate students' stress levels. The study indicated that stress and well-being variables, represented by p-values of -0.159 and 0.215, respectively, were significant. The findings suggested that an increase in stress levels would lead to a decrease in academic performance, while improved well-being would enhance students' learning efficiency. Additionally, the study confirmed previous research indicating that stress negatively affects students' well-being. Therefore, students must develop effective strategies to manage COVID-19-related stress to maintain a positive state of well-being.

Fatimah et al. (2020) examined the relationship between stress and academic performance among 284 university students from selected universities in Selangor. Data collection involved a closed-ended structured questionnaire with four sub-dimensions: campus life, financial stress, relationships, and body, mind, and feelings, totaling 26 items. The study's findings revealed negative and weak correlations between various stress sources (campus life, financial stress, and relationships) and academic performance. However, the correlation coefficients for body, mind, and feelings were not statistically significant, with p-values exceeding 0.05. This suggests a lack of significant relationship between these aspects (body, mind, and feelings) and academic performance.

Man et al. (2021) conducted a study on the relationship between sleep quality, stress, and academic performance among 384 undergraduate students in Malaysia. The researchers used the Perceived Stress Scale (PSS) by Cohen (1983) to measure stress levels. The findings indicated a non-significant, negligible, and negative correlation between stress and academic performance for the overall sample, with $r(382) = -.096$, $p = .060$.

Noman et al. (2021) investigated the effects of employment anxiety, financial anxiety, university support, and lecturer support on dropout intention and academic performance among 436 final-year undergraduate students in Malaysia. They explored how well-being and purpose in life mediated these relationships. The study found that purpose in life and well-being mediated between the ecological environment and students' academic performance and dropout intentions. Higher well-being and a stronger sense of purpose in life were associated with lower dropout rates and better academic performance, while lower levels of well-being and purpose in life were linked to higher dropout rates and academic struggles.

Kamarudin et al. (2009) studied the correlation between stress factors (health, social, and academic) and perceived stress levels at three intervals within a semester (beginning, middle, and end) among Pre-Diploma Science students at the University of Technology MARA (UiTM), Malaysia. The Perceived Stress Scale (PSS) and the Stress Factor Survey were used for assessment.

The study revealed a significant negative correlation between perceived stress levels at the end of the semester and students' academic performance, contrasting with the lack of significant correlation at the beginning and middle of the semester. The findings emphasized the importance of addressing stress factors, such as nutrition, sleep patterns, social engagements, and financial concerns, to support students' academic success throughout the semester.

In their study conducted in Indonesia, Pangastuti et al. (2024) aimed to identify stress levels and coping mechanisms among first-year medical students, specifically in BMS courses, involving 89 students during online basic medical science courses. Data collection included the Perceived Stress Scale (PSS-10) questionnaire, BMS course grades, and open-ended questions. The findings revealed a very weak and non-directional correlation coefficient of -0.032, with a significance value of 0.764, indicating that the relationship between BMS grades and stress

scores was not statistically significant.

Jamrus and Saman (2023) analyzed the impact of time management skills on academic achievement among 120 randomly selected Agriculture students at Universiti Teknologi Mara Malacca Campus. Data collection involved the Time Management Questionnaire (TMQ) by Britton and Tesser, revealing gender-based differences in time management skills within the sample.

Bibi et al. (2022) examined the relationship between students' stress levels and academic performance. They utilized the Student Stress Inventory (SSI) tool for data collection, finding a negative correlation between stress and academic performance (r = -2.36, p = .05***). This suggests that as stress levels rise, academic performance tends to decline, emphasizing the significant impact of stress on academic success.

Zavaleta et al. (2021) studied 150 engineering students from the University of Sciences and Humanities in Peru to investigate stress and academic performance. Data collection involved the SISCO questionnaire on stress and survey, revealing a minimal inverse correlation between stress and academic performance. The results showed that higher stress levels were slightly associated with lower academic performance, with 45.96% of participants achieving high academic performance.

Iqbal et al. (2021) conducted a study with 296 students from Islamia University Bahawalpur, Pakistan, examining the relationship between stress and educational performance. Data collection through a questionnaire assessing academic, psychological, and physical stress factors revealed a significant negative relationship between academic achievement and physical stress (r=.133*, p=0.022) and psychological stress (r=-.133*, p=0.022). The study concludes that physical and psychological stress negatively impact students' educational performance.

### 2.4 Academic Performance

In this study, academic performance is measured using self-reported GPA, as it remains the most widely accepted metric for assessing students' academic success (Abdulwahed et al., 2021; Kocsis & Molnár, 2024). While GPA may not fully capture academic engagement or learning effectiveness, it is frequently used in studies on time management and stress, allowing for comparability with previous research (Bakar et al., 2023; Jane, 2024).

This would also align with previous work by Man et al. (2021) and Iqbal et al. (2021), in which students in this survey would be asked to self-report their GPA on a cumulative basis. While self-reporting GPA has some biases, the literature has demonstrated that students self-report grades relatively accurately under conditions of anonymity (Kuncel et al., 2005).

### 2.5 Research Model

In this study, the researcher focused on examining the impact of time management (including its sub-components: short-range planning, time attitudes, and long-range planning) and stress levels on the academic performance of undergraduate students at Universiti Putra Malaysia. Figure 1 illustrates the research model, with each one-way arrow representing a hypothesized direct relationship between an independent variable and the dependent variable.

The study first aimed to investigate the overall relationship between time management and academic performance ($Ho_1$), followed by an analysis of its three sub-dimensions to examine whether short-range planning ($Ho_{1.1}$), time attitudes ($Ho_{1.2}$), and long-range planning ($Ho_{1.3}$) individually contribute to students' academic performance. In addition, the study tested the

relationship between stress levels and academic performance ($Ho_2$). Finally, the research also explored whether the combined influence of time management and stress level significantly affects academic performance ($Ho_3$).

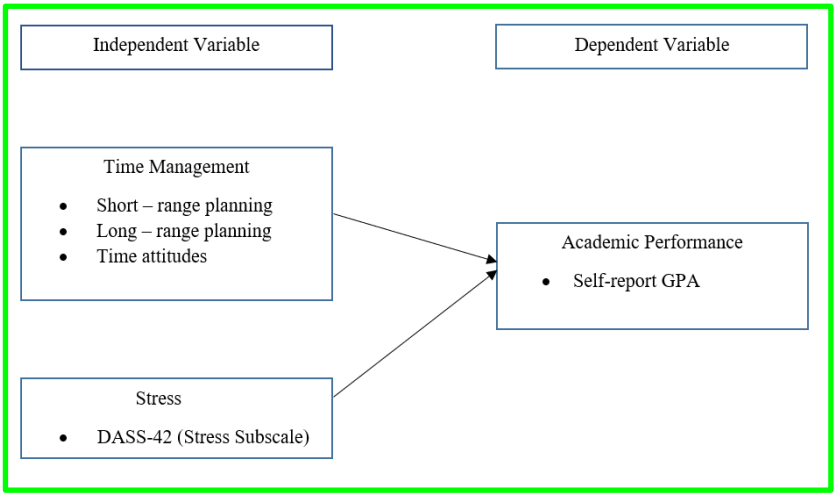


**Figure 1: Research Model of the Study**

The research model is guided by past literature and theoretical insights, particularly Zimmerman's Self-Regulated Learning (SRL) Theory, which highlights the importance of behavioral and emotional self-regulation in achieving academic success. Past literature has extensively examined the relationship between time management and academic performance (Mariano et al., 2022; Bakar et al., 2023; Jane, 2024), as well as between stress and academic performance (Fatimah et al., 2020; Abdullah et al., 2022; Iqbal et al.,2021). However, these variables have largely been studied independently. To address this gap, the study formulates the following null hypotheses:

**Table 1: Hypotheses**

| | |
|---|---|
| Ho1 | There is no significant relationship between time management and academic performance among undergraduate students at Universiti Putra Malaysia. |
| Ho1.1 | There is no significant relationship between short – range planning and academic performance among undergraduate students at Universiti Putra Malaysia. |
| Ho1.2 | There is no significant relationship between time attitudes and academic performance among undergraduate students at Universiti Putra Malaysia. |
| Ho1.3 | There is no significant relationship between long – range planning and academic performance among undergraduate students at Universiti Putra Malaysia. |
| Ho2 | There is no significant relationship between stress and academic performance among undergraduate students at Universiti Putra Malaysia. |
| Ho3 | There is no significant influence of time management and stress on academic performance among undergraduate students at Universiti Putra Malaysia. |

This study employed instruments commonly utilized in higher education research to measure students' time management, stress level, and academic performance. The Time Management Questionnaire (TMQ), developed by Britton and Tesser (1991), was employed to assess students' engagement in short-range planning, long-range planning, and time attitudes, which has been previously applied in Malaysian university settings research and has shown relevance and applicability in that context (Hamzah et al., 2014; Jamrus & Saman, 2021; Azmah et al., 2022). To measure stress, the study utilized the Stress Subscale of the Depression, Anxiety and Stress Scale (DASS-42) by Lovibond and Lovibond (1995). The DASS-42 has been validated

for use in Malaysia, with studies confirming its psychometric adequacy within the local educational setting **(Fatimah et al., 2020; Man et al., 2021; Helmi & Aun, 2023)**. These instruments were selected due to their theoretical grounding, empirical validity, and suitability for the Malaysian student population. Academic performance was assessed using self-reported cumulative GPA, a widely used measure in **similar studies** on student academic performance (Man et al., 2021; Bakar et al., 2023; Jane, 2024). The table below presents the measurement instruments for each variable.

**Table 2: Summary of Variables and Instruments**

| Variable | Type | Definition | Measurement Instrument |
|---|---|---|---|
| Time Management | Independent variable | The degree to which students engage in short-range planning, long-range planning, and time attitude. | Time Management Questionnaire (TMQ) (Britton & Tesser, 1991) |
| Stress | Independent variable | The extent to which students experience stress in their day-to-day lives | 14 stress subscales in the Depression Anxiety and Stress Scale (DASS-42) (Lovibond & Lovibond, 1995) |
| Academic Performance | Dependent variable | Result obtained by students after sitting the final exam | Self-reported cumulative GPA |

## 3. Materials and Methods

### 3.1 Study Design

The research utilizes a quantitative method. This study employs a combination of descriptive and correlational research designs. The descriptive design enables the researchers to describe the current state of time management, stress, and academic performance among undergraduate students. The correlational design aims to establish the relationship between independent variables, such as time management and stress, and the dependent variable, such as academic performance, among undergraduate students.

Time management was assessed using the Time Management Questionnaire (TMQ) by Britton & Tesser (1991); stress was measured using 14 items from the Depression Anxiety and Stress Scale (DASS-42) by Lovibond & Lovibond (1995); and academic performance was measured using self-reported GPA. Descriptive statistics, Spearman correlation analysis, and multiple regression analysis were used to identify the scale of time management, stress, and academic performance; to identify the relationships among these variables; and to identify their influence on academic performance.

### 3.2 Sample Size

A comprehensive, multi-stage random sampling method was used to obtain the data. In the first stage, a selection box was created listing all the public and private universities in the Central Zone of Peninsular Malaysia based on information from the Malaysian Ministry of Higher Education's official online directory. A random number generator then selected Universiti Putra Malaysia from this box to ensure geographic representation. In the second stage, three faculties of Universiti Putra Malaysia and five degree programs from these faculties were selected. The result sample included a diverse range of academic disciplines and course structures, including programs with both theoretical and practical components. In the final stage, student lists were obtained from each selected program. Using a random number generator, approximately 100

full-time undergraduate students were selected from each list based on inclusion and exclusion criteria. The sample size for this study is 391 students, determined based on the Cochran (1963) formula to ensure proportional representation across faculties. The table below presents the distribution of selected students across faculties and undergraduate programs.

**Table 3: Distribution of Selected Students**

| Faculty | Program | Number of Student |
|---|---|---|
| Faculty of Educational Studies | Bachelor of Education in Agricultural Science with Honors | 31 |
| | Bachelor of Education in Home Science with Honors | 31 |
| | Bachelor of Education Physical Education with Honors | 31 |
| | Bachelor of Education in Guidance and Counselling with Honors | 31 |
| | Bachelor of Counselling with Honors | 31 |
| Faculty of Forestry and Environment | Bachelor of Forestry Science with Honors | 30 |
| | Bachelor of Wood Science and Technology with Honors | 30 |
| | Bachelor of Parks and Recreation Science with Honors | 30 |
| | Bachelor of Environmental Management with Honors | 30 |
| | Bachelor of Environmental Science and Technology with Honors | 30 |
| Faculty of Food Science and Technology | Bachelor of Science (Food Service Management) with Honors | 22 |
| | Bachelor of Food Science and Technology with Honors | 22 |
| | Bachelor of Science (Food Studies) with Honors | 22 |
| | Bachelor of Science in Food Manufacturing Operations with Honors | 22 |

Participation was voluntary, and all students provided informed consent before data collection. The study received ethical approval from the Ethics Committee for Research Involving Human Subjects of Universiti Putra Malaysia (JKEUPM) and all the Faculties Dean for data collection, ensuring confidentiality and anonymity in data handling.

**Inclusion Criteria**

1. Full-time undergraduate students enrolled in the selected faculties.
2. Registered in one of the four-year degree programs under the selected faculties, which include coursework, assessments, and practical components.
3. In Year 1 to Year 4 of study during the data collection period.

**Exclusion Criteria**

1. Postgraduate, diploma, foundation, or certificate-level students.
2. Students on academic leave, suspension, or with deferred enrollment.
3. Exchange or short-term mobility students not fully enrolled in UPM's degree programs.

**3.3 Assumptions of the Study**

Several essential assumptions guide this study to ensure the validity and reliability of its findings. A pilot study was conducted to confirm the clarity and appropriateness of the research instrument for the target population. It is assumed that respondents who provided complete responses did so honestly and understood the questionnaire items. The instruments used are

assumed to validly and reliably measure the constructs of time management, stress, and academic performance. The conceptual framework assumes that the relationships among these variables reflect actual patterns among university students. Lastly, the use of multi-stage random sampling is assumed to provide a sample that is reasonably representative of the general university student population within the selected institution.

### 3.5 Data Collection

During the period of data collection, a questionnaire comprising 32 questions was administered to participants to study their time management and stress levels. The questionnaire was distributed online to participants through Google Forms. The Google Forms were shared individually by email to the randomly selected students based on inclusion and exclusion criteria through their official university email addresses. The data was verified through response cross-checked with the respective faculty of the student's GPA information and excluding incomplete entries. The questionnaire was divided into three sections, namely demographic data, time management, and stress. The time management section was an amalgamation of the Time Management Questionnaire (TMQ) and Depression, Anxiety and Stress (DASS-42). The TMQ evaluated three crucial aspects of time management, including time attitude, short-range planning, and long-range planning. Short-range planning comprised seven questions, long-range planning included five questions and time attitudes encompassed six questions. Each item was scored on a 5-point Likert scale, ranging from ‘never’ (1) to ‘always’ (5). To calculate the total score for general time management, four questions (numbers 8, 10, 12, and 15) were reverse-coded. The resulting total score ranged from 18 (lowest) to 90 (highest), with higher values indicating better time management practices, as suggested by Britton and Tesser (Ahmad et al., 2020). The interpretation of the score is as follows:

**Table 4: Interpretation Scores of TMQ**

| Total score | Levels of Time Management Skills |
|---|---|
| 7 – 35 | Short-range planning |
| 5 – 25 | Long-range planning |
| 6 – 30 | Time attitudes |

The DASS–42 consists of 42 self-report items aimed at assessing negative emotional symptoms related to depression, anxiety, and stress. In this study, only the stress subscale is measured, which comprises 14 questions (questions 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, and 39). Participants rate their responses on a 4-point Likert scale, ranging from ‘did not apply to me at all’ (0) to ‘applied to me very much, or most of the time’ (3). The total score for the stress subscale ranges from 0 (lowest) to 42 (highest), indicating the severity of stress symptoms experienced by each individual. The interpretation of the score is as follows:

**Table 5: Interpretation scores of DASS-42**

| Scale | Scores | Level of Stress |
|---|---|---|
| Stress | 0 - 14 | Normal |
| | 15 - 18 | Mild |
| | 19 - 25 | Moderate |
| | 26 - 33 | Severe |
| | 34+ | Extremely severe |

The academic performance of undergraduate students was assessed based on the results obtained by undergraduate students in Universiti Putra Malaysia after sitting the final exam of the following semester, as measured by self-reported GPA. The classification of GPA ranking in Universiti Putra Malaysia is as follows:

**Table 6: Classification of GPA Ranking**

| GPA | Classification |
|---|---|
| 3.750 – 4.000 | First Class Honors |
| 3.000 – 3.749 | Second Class Upper Honors |
| 2.250 – 2.999 | Second Class Lower Honors |
| 2.000 – 2.249 | Third Class Honors |

### 3.6 Data Analysis

The study utilizes a blend of descriptive and inferential statistical analyses to achieve the research objectives and gain comprehensive insights. Descriptive analysis is employed to portray the current status of time management, stress levels, and academic performance among undergraduate students. These analyses address Research Objective 1 by providing a clear overview of the key variables under study. Descriptive analyses were not the focus of the analysis, they are indirectly applicable because aspects such as level of study or course structure may influence students' time-prioritizing or stress-handling. These potential influences are further indicated in the discussion section and are suggested as future research directions.

Correlational analysis aims to establish the relationships between independent variables such as time management and stress and the dependent variable, academic performance, among undergraduate students. Spearman's method, a non-parametric approach, is used to evaluate the correlation among time management, stress, and academic performance, effectively handling non-normally distributed data. A significance level of 0.01 is adopted to maintain stringent statistical rigour.

Multiple regression analysis aims to examine whether time management and stress significantly predicted academic performance among undergraduate students. Prior to the analysis, assumptions of normality, linearity, multicollinearity, and homoscedasticity were checked and met.

Table 7 delineates the various analyses utilised, encompassing mean, median, and mode for descriptive statistics. Meanwhile, Spearman's rank-order correlation, multiple regression, hierarchical regression, and factor analysis are used for inferential statistics, along with bootstrapping for robustness checks. These combined methodologies provide a comprehensive and multifaceted understanding of the interplay among time management, stress, and academic performance among undergraduate students.

**Table 7: Types of Analyses**

| No | Research Objectives | Statistics Analysis |
|---|---|---|
| 1 | To identify the scale of time management (short – range planning, long – range planning, time attitudes) and stress among undergraduate students at Universiti Putra Malaysia. | Descriptive statistics: Mean, standard deviation, percentage, frequency, and in – max |
| 2 | To identify the relationship between time management (short – range planning, time attitudes, long – range planning) and academic performance among undergraduate students at Universiti Putra Malaysia. | Inferential statistic: Spearman's rank correlation |
| 3 | To identify the relationship between stress and academic performance among undergraduate students at Universiti Putra Malaysia. | Inferential statistic: Spearman's rank correlation |
| 4 | To identify the influence of time management and stress on academic performance among undergraduate students at Universiti Putra Malaysia. | Inferential statistic: Multiple regression |

### 3.7 Reliability

The TMQ general and time management subscale has shown psychometric adequacy, with an accepted coefficient alpha of .77 (Ozsoy, 2014). In the current study, the obtained coefficient alphas were .73 for the pilot study and .75 for the main study.

The DASS general and stress subscale also exhibit considerable psychometric adequacy, with a high coefficient alpha of .90 (BetterWorld Healthcare, 2020). In the present study, the obtained coefficient alphas were .87 for the pilot study and .85 for the main study.

In the present study, the variables' Cronbach's Alpha values ranged between .75 and .87. Regarding item appropriateness, all respondents concurred that the items are appropriate, and no modifications are necessary. In summary, the TMQ demonstrates acceptable reliability, while the DASS–42 shows high reliability, indicating robust internal consistency. The instrument was also deemed suitable for implementation among undergraduate students.

The Time Quality Management (TQM) scale has demonstrated a commendable level of internal reliability, with a Cronbach's alpha of 0.71 [29]. A study by Ozsoy [30] further validates the TQM scale as a reliable measure of time management skills, citing a Cronbach's alpha of .77. On the other hand, the DASS-42 scale, used for measuring Depression, Anxiety, and Stress, has shown high internal consistency.

The Cronbach's alpha scores for the Depression, Anxiety, and Stress scales are 0.91, 0.84, and 0.90, respectively. Another study confirmed significant construct validity for the DASS-42, with acceptable correlation measures of 0.799, 0.822, and 0.818 for the depression, anxiety, and stress subscales, respectively ($p<0.05$).

In the current study, the questionnaires used for TMQ and DASS–42 demonstrated that the overall reliability of TMQ is r=.736, and the overall reliability of DASS–42 is r=.830. In terms of item appropriateness, all respondents agreed that the items are suitable and no amendments are required. In conclusion, the TMQ shows acceptable reliability, while the DASS–42 exhibits high reliability, indicating strong internal consistency. The instrument was also deemed suitable for use among undergraduate students.

## 4. Result

### 4.1 Distribution of Gender, Years of Study, Faculty, and Program

The figures below show the breakdown of demographic characteristics among 406 students. Table 8 presents a cross-tabulation, showcasing the distribution of students based on their gender and years of study. The data reveal that in Year 1, there were 49 male and 25 female students. In Year 2, 57 males and 60 female students. Year 3, 26 males and 77 female students. In Year 4, 31 male and 81 female students. Table 5 also illustrates the number of students in each faculty. The Faculty of Educational Studies has the highest number of students (34.7%), followed by the Faculty of Forestry and Environment (33.5%) and the Faculty of Food Science and Technology (31.8%).

Lastly, it highlights the programs with the highest student enrollment. The Bachelor of Forestry Science with Honors and the Bachelor of Food Science and Technology with Honors have the highest enrollment (7.6%), followed by the Bachelor of Education in Agricultural Science with Honors, the Bachelor of Wood Science and Technology with Honors, the Bachelor of Environmental Science and Technology with Honors, and the Bachelor of Science in Food

Manufacturing Operations with Honors (6.9%). Additionally, the Bachelor of Education in Home Science with Honors and the Bachelor of Environmental Management with Honors also have significant enrollment (6.7%).

**Table 8: The Demographic Data**

| Categories | | Frequency | Percentage |
|---|---|---|---|
| ***Years of Study*** | | | |
| Year 1 | Male | 49 | 66.22 |
| | Female | 25 | 33.78 |
| Year 2 | Male | 57 | 48.72 |
| | Female | 60 | 51.28 |
| Year 3 | Male | 26 | 25.24 |
| | Female | 77 | 74.76 |
| Year 4 | Male | 31 | 27.68 |
| | Female | 81 | 72.32 |
| ***Faculty*** | | | |
| Faculty of Educational Studies | | 141 | 34.7 |
| Faculty of Forestry and Environment | | 136 | 33.5 |
| Faculty of Food Science and Technology | | 129 | 31.8 |
| Faculty of Educational Studies | | 141 | 34.7 |
| ***Undergraduate Program*** | | | |
| Bach. of Education in Agricultural Science with Honors | | 28 | 6.9 |
| Bach. of Education in Home Science with Honors | | 27 | 6.7 |
| Bach. of Education Physical Education with Honors | | 29 | 7.1 |
| Bach. of Education in Guidance and Counselling with Honors | | 30 | 7.4 |
| Bach. of Counselling with Honors | | 29 | 7.1 |
| Bach. of Forestry Science with Honors | | 31 | 7.6 |
| Bach. of Wood Science and Technology with Honors | | 28 | 6.9 |
| Bach. of Parks and Recreation Science with Honors | | 30 | 7.4 |
| Bach. of Environmental Management with Honors | | 27 | 6.7 |
| Bach. of Environmental Science and Technology with Honors | | 28 | 6.9 |
| Bach. of Science (Food Service Management) with Honors | | 30 | 7.4 |
| Bach. of Food Science and Technology with Honors | | 31 | 7.6 |
| Bach. of Science (Food Studies) with Honors | | 30 | 7.4 |

## 4.2 Scale of Time Management (short–range planning, time attitudes, long-range planning) and Stress

Table 6. presents the distribution of key study variables. The mean score for long-range planning was the highest (M=3.17, SD=0.38), followed by short-range planning (M=1.03, SD=0.51) and time attitudes (M=3.14, SD=0.41). These findings suggest that respondents generally used long-range planning more frequently than the other two practices. Regarding stress, the scales are categorized as normal, mild, moderate, severe, and extremely severe. Based on Table 6, the findings indicate that the majority of respondents (N=104, 25.6%, M=2.87, SD=1.40) are categorized with a mild level of stress.

**Table 9: Distribution of Key Study Variables**

| Variables | N | % | Mean | SD |
|---|---|---|---|---|
| Time Management | | | | |
| Short – range planning | | | 1.03 | .51 |
| Time Attitudes | | | 3.14 | .41 |
| Long – range planning | | | 3.17 | .38 |
| Stress | | | | |
| Normal | 84 | 20.7 | | |
| Mild | 104 | 25.6 | | |
| Moderate | 68 | 16.7 | 2.87 | 1.400 |
| Severe | 80 | 19.7 | | |
| Extremely severe | 70 | 17.2 | | |

## 4.3 Relationship between Time Management (short–range planning, time attitudes, long-range planning), Stress and Academic Performance

A noteworthy relationship was discovered between short-range planning, time attitudes, long-

range planning, stress, and academic performance. There was a significant, weak, positive correlation found between short-range planning and academic performance. (r=.175, n=406, p<.01). There was also a weak, positive correlation found between time attitudes and academic performance (r=.247, n=406, p<.01). On the other hand, a non-significant negative relationship was observed between long-range planning and academic performance (r=-0.80, n=406, p<0.01). Lastly, a significant, weak, positive correlation was found between stress and academic performance (r=.136, n=406, p<0.01).

**Table 10: Relationship between Time Management, Stress and Academic Performance**

| | Short–range planning | Time attitudes | Long–range planning | Stress | Academic performance |
|---|---|---|---|---|---|
| Short – range planning | - | | | | .175** |
| Time attitudes | | - | | | .247** |
| Long – range planning | | | - | | -.080 |
| Stress | | | | - | .136** |
| Academic performance | <.001 | <.001 | <.001 | .006 | - |

## 4.4 Influence of Time Management and Stress on Academic Performance

Based on the results, the overall model was statistically significant, $F(2, 403) = 31.937$, $p < .001$, and accounted for approximately 13.7% of the variance in academic performance ($R^2 = .137$). There was a significant influence of time management on academic performance ($\beta = .328$, $p < .001$), indicating that students with better time management abilities tended to achieve higher GPA scores. Stress also had a significant influence on academic performance ($\beta = .118$, $p = .013$), although its contribution was smaller compared to that of time management.

**Table 11: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .370[a] | .137 | .133 | .43955 |

a. Predictors: (Constant), MEAN_S, MEAN_TMQ

**Table 12: Anova**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 12.341 | 2 | 6.170 | 31.937 | .000[b] |
| | Residual | 77.862 | 403 | .193 | | |
| | Total | 90.202 | 405 | | | |

a. Dependent Variable: GPA
b. Predictors: (Constant), MEAN_S, MEAN_TMQ

**Table 13: Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. | Tolerance | VIF |
| 1 | (Constant) | 1.599 | .235 | | 6.799 | .000 | | |
| | MEAN_TMQ | .515 | .074 | .328 | 6.934 | .000 | .959 | 1.042 |
| | MEAN_S | .119 | .048 | .118 | 2.495 | .013 | .959 | 1.042 |

a. Dependent Variable: GPA

# 5. Discussion

### 5.1 The relationship between Time Management and Academic Performance

The relationship between time management and academic performance is multifaceted and necessitates a thorough examination. This study among undergraduate students at Universiti Putra Malaysia offers deeper insights compared to previous research. Notably, while previous studies often highlight the importance of long-range planning, our findings draw greater attention to the effectiveness of short-range planning and time attitudes in predicting academic success. These dimensions showed significant positive relationships with GPA, aligning with findings by Agormedah et al. (2021), whereas long-range planning did not yield a statistically significant correlation.

Short-range planning and time attitudes represent core elements of the forethought and performance phases in Self-Regulated Learning (SRL) Theory. These dimensions involve setting immediate goals, organizing tasks, and managing motivation, which are key strategies that enable students to engage with learning material and sustain academic performance. Our findings suggest that students who are able to regulate their time effectively in the short term are more likely to meet academic demands successfully.

In contrast, long-range planning, while conceptually linked to the forethought phase, did not significantly correlate with academic performance ($r_s = –.080$, $p = .109$). This finding diverges from Azmah et al. (2022), whose study of first-year medical students revealed a significant positive relationship between long-range planning and academic performances. This contrast may reflect differences in academic context. Medical programs, particularly in the first year, often follow highly structured, content-intensive pathways that reward long-term planning. In comparison, the more varied course structures and deadlines encountered by the broader undergraduate population in our study may lead students to rely more heavily on short-term task management strategies.

Our descriptive data also provided valuable contextual insight. Students across diverse faculties, including Educational Studies, Forestry and Environment, and Food Science and Technology might face differing academic demands. However, the importance of time management emerged as a universal factor in academic success, suggesting that while the form of time management may vary, its value remains consistent across disciplines (Adams et al., 2019). Similarly, across years of study, from Year One to Year Four, the role of time management remained relevant. Although the academic landscape evolves as students' progress through university, their continued reliance on short-term planning and time regulation highlights the enduring importance of these self-regulatory behaviors (Jane, 2024).

From an SRL perspective, these patterns may reflect how academic context shapes the regulation of learning strategies. While long-term planning is theoretically critical in the forethought phase, its impact may be less direct on short-term academic performance when compared to immediate strategies like time monitoring and daily task management. The lack of a robust association between long-range planning and GPA in this study may suggest that students have yet to fully operationalize long-term goals or that such goals are simply too distal to influence current academic performance. Future research could explore how academic program type, year of study, and learning environments moderate the relationship between specific time management dimensions and various academic outcomes—especially in relation to long-term goal pursuit.

Finally, the discrepancies between our findings and prior research may be influenced by contextual variables such as disciplinary expectations, course load intensity, and academic year. Fields like medicine may necessitate more structured, long-term planning, while broader programs may require greater flexibility and adaptability in managing time (Mariano et al., 2022; Azmah et al., 2022). These differences underscore the importance of tailoring time management support and SRL-based interventions to students' academic contexts and individual learning needs.

### 5.2 The Relationship between Stress and Academic Performance

Regarding stress and its impact on academic performance, previous studies like Man et al. (2021) found a negative correlation, with higher levels of stress leading to lower academic performance among Malaysian undergraduate students. In contrast, our investigation uncovered a noteworthy relationship between stress and academic performance, indicating that mild stress might act as a motivating force, enhancing the performance in academics, as depicted in Iqbal et al. (2021). This underlines a contextualized approach to understanding how stress levels have an impact on academic success, considering differences in faculties, academic years, and individual coping mechanisms.

This could be due to the difference in workload between faculties, where our study focused on students from Educational Studies, Forestry and Environment, and Food Science and Technology, whose nature of coursework is more structured and practical-oriented, hence allowing students to manage stress better. By contrast, Man et al. (2021) probably researched students in the high-intensity fields of medicine, engineering, or law programs, where the level of stress is notably higher, hence impeding cognitive function and, as a result, their academic performance. Besides, post-pandemic learning adaptations may have impacted stress responses; for instance, students in our study may have benefited from more flexible academic structures, while in earlier studies, students faced more abrupt learning disruptions that could exacerbate the negative effects of stress.

Another possible cause of these discrepant findings could be due to differences in students' self-regulatory capacities, particularly their ability to apply effective learning strategies such as time management. According to Self-Regulated Learning (SRL) Theory, these behaviors are termed as proactive coping strategies through which the learners schedule, regulate, and change their academic performance as per inner and outer expectations (Zimmerman, 2002). Although our study did not measure coping strategies directly, it is possible that some students in our study effectively regulated their stress levels through structured time management, allowing them to obtain successful academic performance.

The findings corroborate the view that stress can affect academic performance, but its impact is mediated by individual variability in self-regulation and environmental factors. While excessive stress may undermine focus and disrupt study routines, a modest amount of academic stress can be a stimulus to action that encourages students to work more diligently on tasks and keep themselves in order. The moderately weak but actual relationship observed here may suggest that the majority of students have adjusted to academic pressure through institutional processes, for instance, how the classes are organized or through self-management techniques such as short-term planning and awareness of time.

This specificity highlights the dynamic interplay between cognitive and affective processes in the SRL model. It also suggests that future research will need to investigate how specific self-

regulated learning strategies, like emotional regulation, goal-setting, and strategic time management can act as protective buffers against the negative effects of stress on academic achievement, particularly in diverse academic disciplines and institutional settings.

### 5.3 The Influence of Time Management and Stress on Academic Performance

The regression analysis showed that time management and stress together predict academic performance, with the model accounting for 13.7% of the variance in GPA scores, $F(2, 403) = 31.937$, $p < .001$. Among the two predictors, time management was the more potent predictor ($\beta = .328$, $p < .001$), while stress had a weaker but significant effect ($\beta = .118$, $p = .013$). These findings emphasize the fact that while stress can have a negative influence on academic performance, its impact can be moderated by effective time management behavior which is a key component of Self-Regulated Learning (SRL).

Time management within SRL theory is a proactive self-regulatory approach situated within the forethought and performance phases that encompasses goal setting, scheduling, and tracking the execution of tasks. These behaviors allow students to stay organized, reduce procrastination, and manage workload. Time management may also serve as a buffer against stress by facilitating perceptions of control, and as such, contributing to emotional stability and academic persistence.

Although no statistical examination was conducted on demographic variables versus the regression model, descriptive data give insight. Most students reported moderate to high stress, particularly in senior years, yet most continued to perform well academically. The trend suggests that some students were possibly using time management as an SRL strategy to maintain performance despite stress. This finding would be consonant with SRL theory's emphasis on adaptive coping.

Additionally, students from various faculties, from strongly structured programs like Food Science and Technology to less restricted curricula in Educational Studies, demonstrated varied academic demands. Yet, across disciplines, the predictive validity of time management attests that self-regulation is advantageous across the board, regardless of course structure. This attests to the need for institutions to include SRL-focused skills development within academic support services, particularly those which address stress management, planning, and behavioral regulation.

Cumulatively, the results depict the intertwining of cognitive and emotional control in impacting academic outcomes. Although stress itself may be a threat to performance, the deployment of SRL strategies, particularly effective time management, can serve as a strong antidote, supporting student performance even in high-stress learning environments.

## 6. Implications

The divergent findings concerning time management and stress underscore the complexity of factors influencing academic performance among undergraduate students. Recognizing the nuanced interplay between time management, stress, and academic outcomes, educators and policymakers can implement targeted interventions to support students on their academic journey.

The research findings could be valuable in assisting academic institutions to conduct time management workshops as part of the orientation process, where students will be taught to

prioritize, set goals, and schedule to manage their coursework, deadlines, and personal commitments. Academic advisors and faculty members must also impress active time management strategies during the mentoring process so that students develop structured approaches to completing tasks efficiently. Further, universities can use different digital tools like time-trackers, guided study planners, and stress-monitoring platforms that will enable students to self-regulate their academic habits and mental well-being.

Besides academic support, mental health and counseling providers play a crucial role in fostering resilience to academic stress in students. Mental health and counseling providers can provide training on how to handle one's emotional issues with regard to academic pressure. It is worth noting that one could individually obtain a number of specific services by individual counseling, group therapy, or even peer mentorship provided through a professional counsellor. Early intervention programs can identify students at risk of burnout, ensuring they receive the necessary support before their academic performance is significantly impacted.

In conclusion, our study contributes to the growing body of literature on the intricate interplay between time management, stress, and academic performance among undergraduate students. By embracing the complexity of these relationships and tailoring interventions to meet the diverse needs of students, academic institutions, mental health and counselling providers play a crucial role in promoting success among students while improving mental health outcomes and overall long-term achievements in higher education (Mariano et al., 2022).

## 7. Limitation

This study acknowledges several limitations that could be addressed in future research. First, the reliance on self-reported questionnaire data may have introduced response bias, potentially affecting the accuracy of reported time management skills, stress levels, and academic achievement. Second, the sample was drawn from only three faculties at Universiti Putra Malaysia, limiting the generalizability of the findings to other institutions and student populations. Third, the study did not consider potential moderating variables such as coping mechanisms, personality traits, or support networks. Fourth, the cross-sectional design prevents the establishment of causal relationships. Future research could mitigate these limitations by employing a larger, more diverse sample, incorporating multiple data collection methods, and considering additional variables and longitudinal designs.

## 8. Recommendations

Despite the potential negative effects of these limitations, they offer valuable guidance for conducting future research more effectively. This study relied on self-reported data; therefore, future research could benefit from integrating objective measures of engagement, such as using applications for tracking time, conducting diary studies, or directly observing studying behaviors, in place of self-reported GPAs. Additionally, future studies could include participants from multiple universities, diverse academic disciplines, and various levels of study, including postgraduate students, to gain broader perspectives. This would also allow for comparisons of how time management and stress influence academic performance across different academic settings.

Furthermore, future research should explore the interaction between time management strategies and preferred coping styles to identify which combinations are most effective for enhancing

academic success. Longitudinal studies could also be conducted to examine the relationship between time management, stress, and academic performance over an extended period. By collecting data from the same group of participants over time, longitudinal research enables researchers to monitor changes and developments. For instance, data collection could begin at the start of participants' undergraduate studies, with regular follow-ups (e.g., every semester or academic year) until graduation, providing a more comprehensive understanding of how undergraduate students' time management practices, stress levels, and academic performance evolve.

## 9. Conclusion

The study shows a significant but weak correlation between time management (short–term planning, time setting, long-term planning), stress, and academic performance among students of Universiti Putra Malaysia. While these correlations are statistically significant, their low magnitude suggests that other factors may also significantly influence academic performance. The study suggests that in addition to stress levels and time management strategies, factors such as study habits, course content, personal motivation, and support networks can also influence academic performance. This highlights the complexity of academic performance and the need for further research to uncover other potential influencing factors. The study also highlights the importance of a comprehensive approach to academic support services. It recognizes that while stress management and time management are critical, they are only two of many factors that can influence a student's academic trajectory.

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# EXPLORING THE ICT INTEGRATION BY TVET TEACHERS IN CHINA: A SYSTEMATIC REVIEW

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## ABSTRACT

The integration of Information and Communication Technology (ICT) in Technical and Vocational Education and Training (TVET) is a critical driver for modernizing education and enhancing teaching practices. However, in China, ICT integration faces unique challenges, including inadequate infrastructure, insufficient teacher training, and limited pedagogical frameworks. This study investigates the extent of ICT integration by TVET teachers, identifies key barriers, and highlights emerging best practices. Using a Systematic Literature Review (SLR) of 44 studies from the last decade (2015–2024), analyzed via the PRISMA framework, the findings reveal progress in ICT integration, with persistent challenges. Guided by TPACK, TPB, and BDT, this study emphasizes the importance of improving teachers' technological and pedagogical competencies, addressing digital literacy gaps, and implementing data-driven strategies. Recommendations include targeted teacher training, enhanced institutional support, and strategic frameworks tailored to vocational education needs to ensure sustainable ICT integration.

**Keywords:** ICT Integration, TVET Teachers, Systematic Literature Review, TPACK, PRISMA, Teacher Training

# Introduction

## 1.1 Background

Information and Communication Technology (ICT) encompasses various tools and systems, including computers, mobile devices, and network technologies, designed to facilitate communication, data sharing, and collaboration (Azonuche, 2020). In educational contexts, ICT acts as a transformative force, bridging theoretical knowledge and practical skills, enhancing resource accessibility, and promoting collaborative learning (Asongu & Odhiambo, 2020; Ahmad et al., 2021). Particularly within Technical and Vocational Education and Training (TVET), the strategic integration of ICT is essential for aligning vocational education with global economic demands and evolving industry standards (Badawi et al., 2021). ICT adoption across educational levels is recognized as critical for preparing students to navigate and succeed in increasingly digitalized workplaces (Shah et al., 2022).

In China, national strategies such as "Education 2030" and the country's broader digital transformation initiatives have underscored the importance of integrating ICT within TVET curricula (UNESCO, 2018). Nonetheless, despite significant investment and policy support, multiple challenges persist, including regional disparities in digital infrastructure, insufficient professional training for teachers, and limited pedagogical frameworks specifically tailored to vocational contexts (Chen & Bin, 2024). Additionally, gaps remain regarding understanding how ICT integration concretely impacts teaching effectiveness, student motivation, and the linkage between theoretical instruction and practical skill acquisition (Han et al., 2020).

The literature on ICT integration in TVET highlights notable advancements in educational technology applications, such as blended learning, virtual reality (VR), mobile learning, and simulation-based instruction (Chen & Liu, 2021; Shi et al., 2021; Yao, 2021). Empirical studies from various countries have shown these methods significantly enhance learning outcomes, engagement, and skill acquisition. For instance, blended learning models utilizing online and offline instructional elements have demonstrated enhanced student interaction and learning effectiveness compared to traditional approaches (Jiang, 2022; Yang, 2024). Likewise, Massive Open Online Courses (MOOCs) and VR-based simulations have proven effective in fostering higher-order cognitive skills, aligning well with the principles outlined in Bloom's Digital Taxonomy (BDT) (Churches, 2008; Ji, 2016b; Zeng & Wang, 2022).

Despite these positive outcomes, existing research reveals significant limitations and failures in ICT integration initiatives. Common issues include inadequate teacher preparedness, insufficient institutional support, technological infrastructure deficits, and low adoption rates among educators (Han et al., 2020; Ma, 2019). Furthermore, studies suggest that successful ICT integration depends heavily on teachers' competencies in technology, pedagogy, and content knowledge—areas comprehensively captured by the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). Equally important are teachers' behavioral intentions and motivations, influenced by attitudes, subjective norms, and perceived control—elements effectively addressed by the Theory of Planned Behavior (TPB) (Ajzen, 1991; Richard et al., 2023).

A systematic synthesis of existing literature thus indicates several critical gaps: First, there is limited understanding of how these identified competencies and psychological factors collectively influence TVET teachers' actual integration of ICT into their teaching practices. Second, there is inadequate exploration of effective pedagogical frameworks that specifically address vocational education contexts, aligning technological applications with vocational learning outcomes. Third, despite extensive empirical evidence from global contexts, there remains insufficient comparative analysis of China's TVET experiences with international best practices, restricting the applicability and generalizability of findings.

**Problem Statement**

Based on the above synthesis, this study addresses these identified gaps by systematically examining how Chinese TVET teachers integrate ICT into teaching and learning, identifying specific barriers, and exploring effective interventions or best-practice models. Guided explicitly by integrating the TPACK, TPB, and BDT frameworks, this research aims to provide actionable insights into enhancing ICT integration, thereby informing targeted professional development strategies, institutional policy-making, and ultimately improving vocational education outcomes. Despite a growing body of research highlighting the benefits of ICT in education, several studies also reveal substantial challenges and limitations in real-world implementation. For instance, Han et al. (2020) found that many teachers lack the pedagogical skills and confidence to integrate ICT meaningfully, resulting in superficial use of digital tools. Ma (2019) reported that in some institutions, ICT integration was policy-driven but poorly executed, leading to tokenistic usage and minimal pedagogical transformation.

Moreover, studies such as Ouyang (2017) and Cai & Qian (2021) emphasized regional disparities, where schools in underdeveloped provinces struggle with outdated infrastructure, low digital literacy, and limited institutional support. Even when training programs are offered, they often fail to address teachers' specific subject needs or long-term development (Chen & Liu, 2021). These findings underscore that ICT adoption is not merely a technical issue but a systemic and cultural one, deeply embedded in institutional capacity, teacher belief systems, and policy alignment.

**Integrated Theoretical Framework**

To comprehensively explore ICT integration by TVET teachers, this study systematically integrates the three complementary theoretical frameworks—Technological Pedagogical Content Knowledge (TPACK), Theory of Planned Behavior (TPB), and Bloom's Digital Taxonomy (BDT). As outlined by TPACK, teachers must integrate technological, pedagogical, and content knowledge to create effective learning environments (Mishra & Koehler, 2006). Meanwhile, TPB highlights the importance of teachers' behavioral intentions, shaped by supportive attitudes, subjective norms, and perceived control, in successfully adopting ICT in their classrooms (Ajzen, 1991). Each framework addresses distinct yet interrelated dimensions critical to understanding and enhancing ICT integration:

TPACK provides a framework to examine the interplay among technological knowledge, pedagogical skills, and content mastery required for effective teaching practice.

TPB offers insights into teachers' psychological readiness and willingness to adopt ICT, emphasizing their attitudes, subjective norms, and perceived behavioral control.

BDT provides criteria for evaluating how ICT tools align with cognitive learning objectives, focusing on the development of higher-order thinking skills such as analysis, evaluation, and creation, particularly pertinent to vocational education contexts.

Figure 1 visually represents how these theories integrate, forming a coherent analytical framework guiding this review. TPACK establishes a foundation by defining required competencies; TPB elucidates motivational and behavioral dimensions influencing teachers' adoption of technology; and BDT assesses educational outcomes related to cognitive skill advancement. This integrated model ensures a holistic approach, facilitating a detailed analysis of ICT integration processes, barriers, and effective practices among TVET teachers in China.

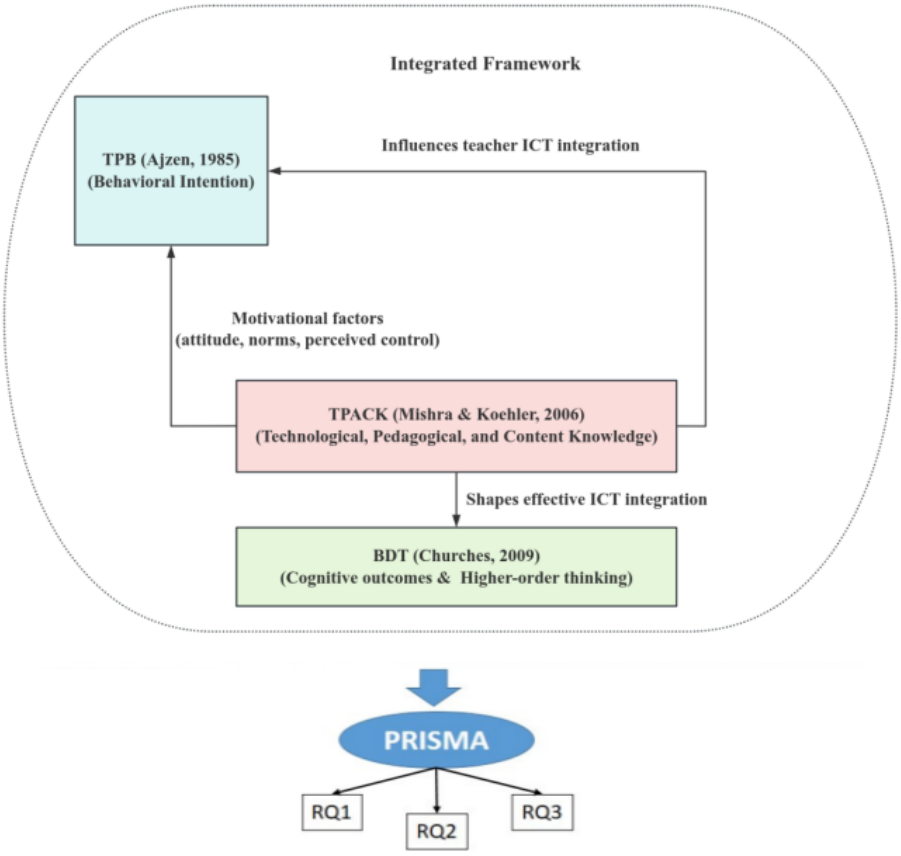


**Figure 1: Integrated Framework of the Study**

Building on the theoretical framework outlined in the previous section, this study situates the integration of ICT in Chinese TVET within the broader global context, emphasizing its role in addressing the economic and educational demands of the 21st century.

The integration of ICT in vocational education is critical for addressing the demands of a rapidly evolving global economy. TVET serves as a cornerstone of economic growth and workforce development, contributing to industrial innovation and reducing unemployment (Saud et al.,

2011). Nations such as Jamaica, China, Malaysia, and India have leveraged TVET to enhance employment opportunities and drive socioeconomic progress (Brewer & Comyn, 2015). At its core, TVET equips learners with the skills and competencies necessary to succeed in industrial environments while fostering entrepreneurial potential. However, the successful integration of ICT in TVET requires effective teacher preparation and professional development, underscoring the importance of frameworks like TPACK and TPB in guiding technology adoption and utilization.

Recent empirical studies highlight the transformative potential of ICT in TVET settings, providing practical insights into the application of TPACK, TPB, and BDT. United Nations Educational, Scientific, and Cultural Organization (UNESCO) identifies teaching and learning as key areas for ICT implementation, emphasizing its role in fostering cognitive, affective, and psychomotor objectives (Chris, 2005). From the BDT perspective, ICT tools have proven effective in promoting higher-order cognitive skills such as analysis, evaluation, and creation (Churches, 2008). For instance, blended learning approaches, which integrate ICT with traditional methods, have shown greater effectiveness in improving teaching outcomes compared to solely ICT-enabled methods, particularly in the cognitive domain (Yasak & Alias, 2015).

Moreover, studies in Bangladesh highlight the practical application of TPACK, where teachers integrate technological, pedagogical, and content knowledge to improve teaching quality, time efficiency, and learning outcomes (Shamim & Raihan, 2016). Similarly, research in Ghana underscores the behavioral factors outlined in TPB, demonstrating that teachers' mastery of ICT tools and technology-mediated pedagogical strategies depends on their attitudes, perceived control, and supportive norms within their teaching environments (Richard et al., 2023).

These findings underscore the central role of teachers in ICT integration. The ability of teachers to effectively embrace and adapt technology is critical for enhancing their instructional competencies and improving educational outcomes in TVET (Cabero-Almenara et al., 2021). In the Chinese context, aligning teachers' competencies with the principles of TPACK and addressing behavioral barriers identified by TPB can provide actionable pathways to overcome existing challenges. This study builds on these insights to explore ICT integration by TVET teachers in China and identify best practices for fostering sustainable development in vocational education.

**Research Questions**

This study adopts a systematic literature review (SLR) to investigate ICT integration in Chinese TVET, focusing on three core research questions:

(1) What is the status of the integration of ICT in teaching and learning by TVET teachers in China?

(2) What barriers or challenges hinder the integration of ICT into teaching and learning among Chinese TVET teachers?

(3) What interventions or best practice models have been developed or identified towards promoting the integrate of ICTs among TVET teachers in China?

By addressing these questions, the study aims to provide a comprehensive understanding of ICT integration in vocational education and offer actionable recommendations for enhancing teaching and learning outcomes.

## Methods

This study adopted the Preferred Reporting Items for Systematic Reviews (PRISMA) framework to conduct an SLR aimed at addressing the research questions. The PRISMA framework was chosen for its rigorous approach to ensure transparency and consistency in systematic reviews. The process began with the development of a comprehensive search strategy, incorporating Boolean operators and relevant keywords to retrieve studies from selected databases. A structured selection process was then applied, including screening by title, abstract, and full text. To ensure reliability and validity, meticulous documentation of each step, including inclusion and exclusion criteria, was maintained, and the quality of selected studies was assessed based on predefined benchmarks.

This study adopted a systematic approach to keyword selection to ensure comprehensive coverage of relevant literature, emphasizing the inclusion of diverse terminologies relevant to ICT integration in China's TVET context. Recognizing the variety of terms used to describe TVET in the region, the search strategy incorporated alternatives such as "vocational," "TVET," "technical education," "higher vocational college," and "Technical and Vocational Education and Training." Given the multifaceted nature of ICT, a broad range of keywords was employed to capture its different dimensions, including "ICT," "technology integration," "AI," "VR," "telecommunication," "online," "online teaching," "artificial intelligence," "e-learning," "virtual," "blended mode," "digital tools," "digital technology," "tech," "computer technology," "technology," and "digital." This comprehensive search string was designed to maximize the retrieval of relevant studies across databases.

Additional keywords such as "model," "framework," "intervention," and "best practice" were incorporated into the search strategy to identify best practices in ICT integration. Boolean operators "AND" and "OR" were systematically employed to combine these keywords, enabling the retrieval of a comprehensive and targeted set of studies. This approach ensured that the search captured studies focusing on ICT integration models, frameworks, and effective interventions in vocational education. By leveraging these operators, the strategy optimized both the breadth and depth of the search across the selected databases.

Two major academic databases, Scopus and Web of Science (WoS), were selected to ensure the inclusion of a broad and comprehensive range of relevant literature. These databases were chosen based on three primary considerations: their extensive coverage of ICT and TVET-related literature, their inclusion of high-impact journals to ensure high-quality sources, and their ability to provide extensive access to full-text articles. The initial search phase yielded a total of 537 records from Scopus and 28,075 records from WoS, reflecting the substantial coverage of these databases.

Meanwhile, to refine the extensive set of records retrieved during the initial search, a systematic application of inclusion and exclusion criteria was conducted to ensure relevance to the study's objectives. Firstly, only studies published within the last ten years (2015–2024) were included to capture the most recent trends and practices in ICT integration. Secondly, publications were limited to those written in English to ensure accessibility and consistency in analysis. Thirdly,

only peer-reviewed journal articles, conference proceedings, and book chapters were considered, as these sources typically undergo rigorous review processes, ensuring reliability. Finally, the scope of the review was narrowed to studies conducted within the context of China, aligning with the research objectives.

The application of these criteria resulted in the selection of 368 records from Scopus and 410 records from WoS. Table 1 presents a detailed summary of the inclusion and exclusion process.

**Table 1: Inclusion/Exclusion Criteria for the Study**

| Criteria | For Inclusion | For Exclusion |
|---|---|---|
| Time period | 2015-2024 | < 2015 |
| Language | English | Other than English |
| Type of literature | Journal articles, conference proceedings and book chapters | Books, review, conference review, editorial, retracted, thesis |
| Country | China | Other than China |

A comprehensive database was developed using Microsoft Excel to systematically manage the details of the literature retrieved from Scopus and WoS. The screening process was conducted in multiple stages to ensure a systematic refinement of the records.

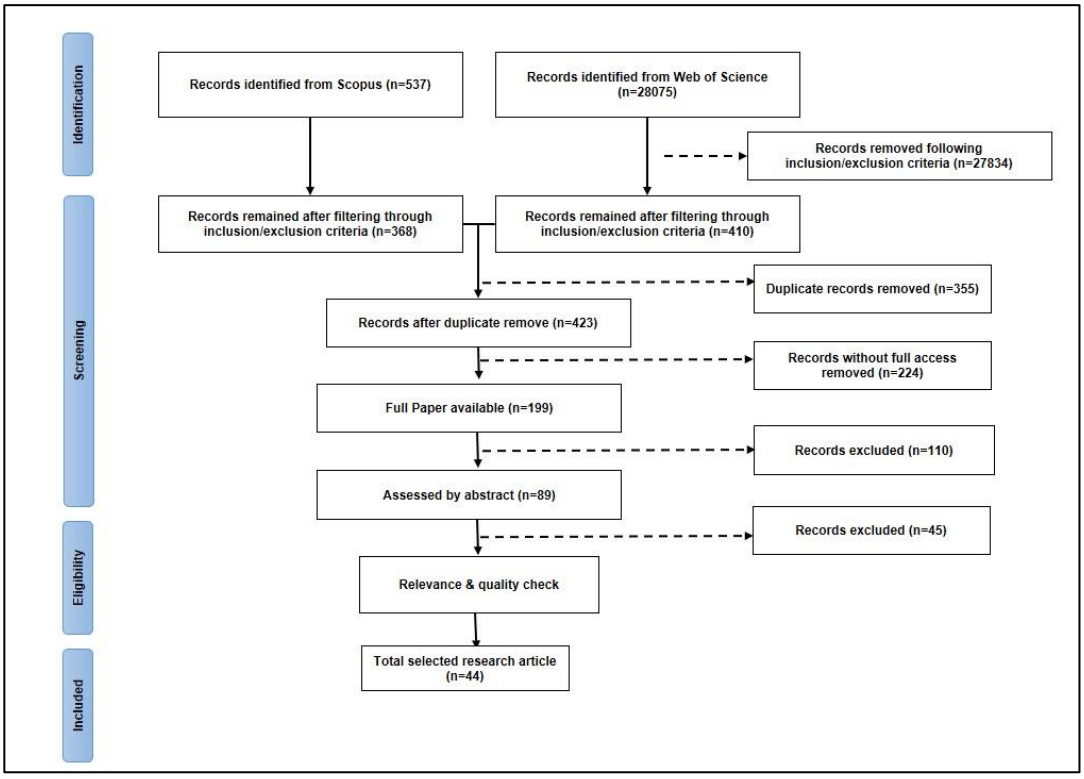


**Figure 2: Summary of Systematic Review**

In the first stage, duplicate entries within the database were identified and removed. In the second stage, only studies with full-text access were retained, resulting in 199 records. In the

third stage, the abstracts of the remaining records were reviewed to assess their relevance to the research questions, leading to a shortlist of 89 pieces of literature. Finally, in the fourth stage, full-text papers were thoroughly analyzed against the research objectives, culminating in the selection of 44 studies for the systematic review.

The complete screening process, aligned with the PRISMA framework, is visually summarized in Figure 2.

Data from the 44 full-text articles were extracted, tabulated, and systematically organized in an Excel sheet. Key information, including the year of publication, study objectives, keywords, research design, and subject area, was documented to facilitate classification. These articles were then categorized according to the research questions (RQ1, RQ2, and RQ3) and supported by evidence from the analyzed studies (**see Table 2 in the appendix**).

The extracted data were then analyzed thematically, guided by the theoretical frameworks of TPACK, TPB, and BDT.

### 2.1 Data Analysis

The extracted data from the selected studies were systematically analyzed through a thematic analysis approach, explicitly guided by an integrated theoretical framework comprising TPACK, TPB, and BDT. The analytical process involved several iterative steps:

**Initial Coding and Classification:** Firstly, each study was reviewed to identify key themes related to ICT integration within the TVET context. Initial codes were assigned to relevant text segments based on predefined constructs from the theoretical frameworks:

TPACK-related codes captured references to teachers' technological, pedagogical, and content knowledge, focusing on competencies and instructional practices.

TPB-related codes focused on teachers' behavioral intentions, attitudes, subjective norms, and perceived behavioral control regarding ICT adoption.

BDT-related codes highlighted cognitive dimensions, assessing how ICT use facilitated higher-order thinking skills like analysis, evaluation, and creation.

**Thematic Organization:** The initially coded segments were then grouped into coherent themes and sub-themes according to their theoretical alignment. This helped in clearly demonstrating how each theme corresponded to specific theoretical constructs, ensuring logical consistency.

**Cross-Verification and Integration:** Themes identified through TPACK, TPB, and BDT lenses were cross-verified for consistency and comprehensiveness. This integration step confirmed that the themes collectively reflected the multifaceted nature of ICT integration—encompassing competency development (TPACK), behavioral and motivational influences (TPB), and cognitive outcomes (BDT).

**Final Synthesis and Reporting:** Finally, themes were synthesized into a structured narrative directly addressing the research questions. The reporting explicitly articulated how the integrated theoretical framework informed the interpretation of the findings, highlighting the interplay among teachers' competencies, behavioral factors, and pedagogical effectiveness, thus providing robust and theoretically grounded answers to the research questions.

# Results

## 3.1 Overview of the Studies

This investigation synthesized findings from the TVET field to evaluate the extent and efficacy of ICT integration by TVET teachers in China. The study analyzed literature published over the last decade (2015–2024) to examine the current status, prevailing practices, and perceived barriers related to ICT use in vocational education. Among the 44 identified studies, the majority were published in 2021 (n = 9) and 2024 (n = 9), followed by 2023 (n = 7) and 2022 (n = 6). The fewest studies were published in 2018 (n = 2) and 2020 (n = 2), and no relevant publications were identified in 2015.

Figure 3 illustrates that research on ICT integration in Chinese TVET has significantly increased since 2021, coinciding with the COVID-19 pandemic's impact on education. This surge reflects a growing emphasis on technology-enabled teaching strategies in response to the shift towards online and hybrid learning environments. From a theoretical perspective, this trend aligns with the TPACK framework, which underscores the importance of integrating technological, pedagogical, and content knowledge to adapt to rapidly changing educational demands. The pandemic also highlighted the relevance of TPB constructs, such as perceived behavioral control and subjective norms, in influencing teachers' adoption of ICT during challenging circumstances. Furthermore, the increased focus on digital tools aligns with Bloom's Digital Taxonomy, as the use of ICT facilitated higher-order cognitive skills, such as problem-solving and critical thinking, in TVET programs.

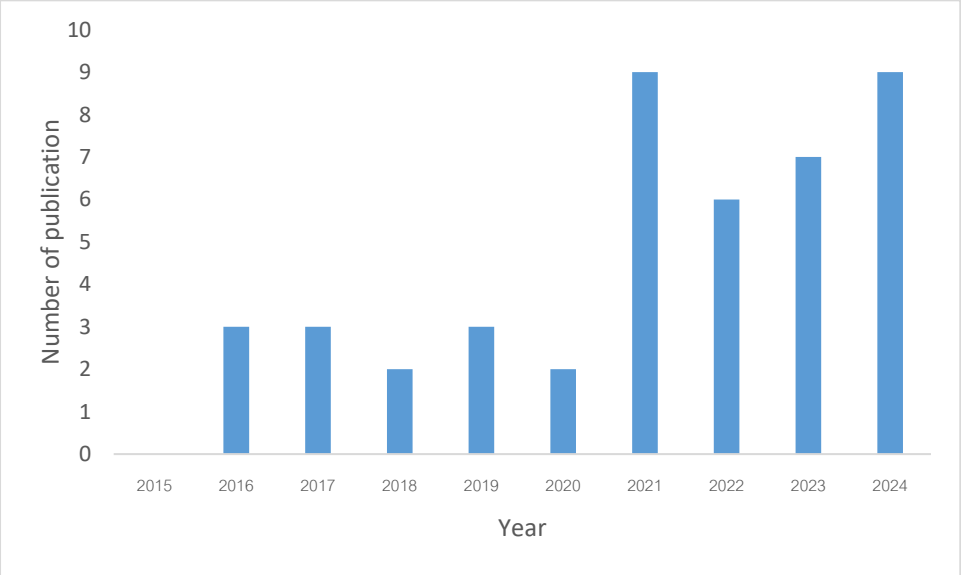


**Figure 3: Publication on ICT Integration by TVET Teachers within Last Ten Years**

Most of the 44 reviewed studies were journal articles (n = 33), with a smaller proportion comprising book chapters (n = 3, 7%), as shown in Figure 4. The dominance of journal articles reflects the prevalence of peer-reviewed empirical research in the field, ensuring the reliability and academic rigor of the included literature.

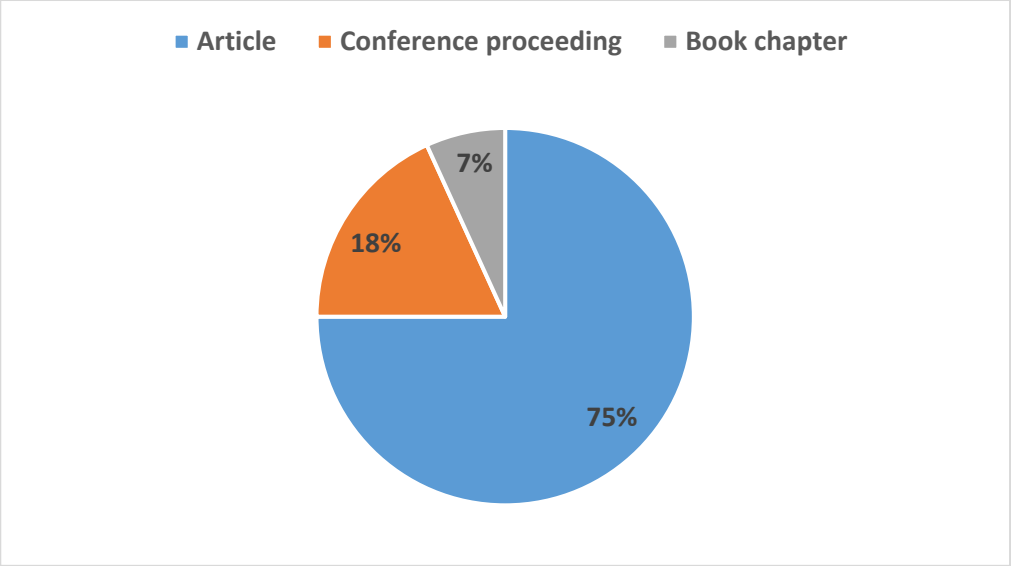


**Figure 4: Types of Publications**

In terms of research methodology, most studies employed quantitative approaches (n = 18), followed by qualitative methods (n = 10) and mixed methods (n = 8). A few studies also utilized hybrid methods, experimental designs, or case studies, reflecting the diverse methodological approaches adopted to explore ICT integration in TVET teaching (Figure 5). Notably, some studies focused on developing models or frameworks for effective ICT integration, aligning with the TPACK framework, which emphasizes the intersection of technology, pedagogy, and content knowledge in guiding teachers' practices. This indicates a growing interest in practical applications and actionable strategies to address challenges in ICT integration within the TVET context.

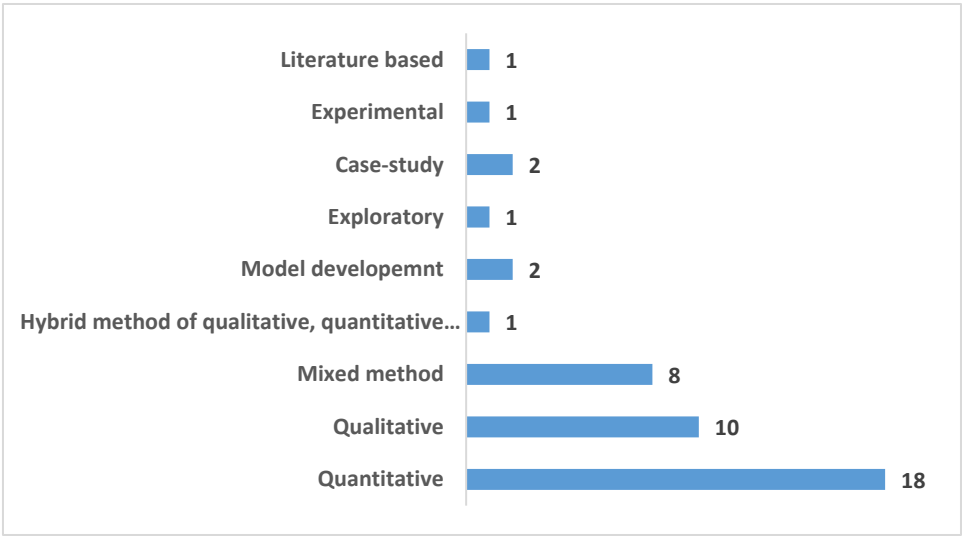


**Figure 5: Types of Research Studies**

In terms of subject areas, the studies were predominantly categorized as either general (n = 12) or multidisciplinary (n = 13), as illustrated in Figure 6. This broad scope reflects the versatility of ICT integration, with its applications spanning multiple disciplines and educational contexts.

From the perspective of TPB, this diversity suggests that subjective norms and perceived behavioral control may vary significantly across different subject areas, influencing teachers' adoption and effective use of ICT tools. Furthermore, the emphasis on multidisciplinary approaches aligns with BDT, highlighting the potential of ICT to address cognitive, affective, and psychomotor learning objectives across diverse educational scenarios.

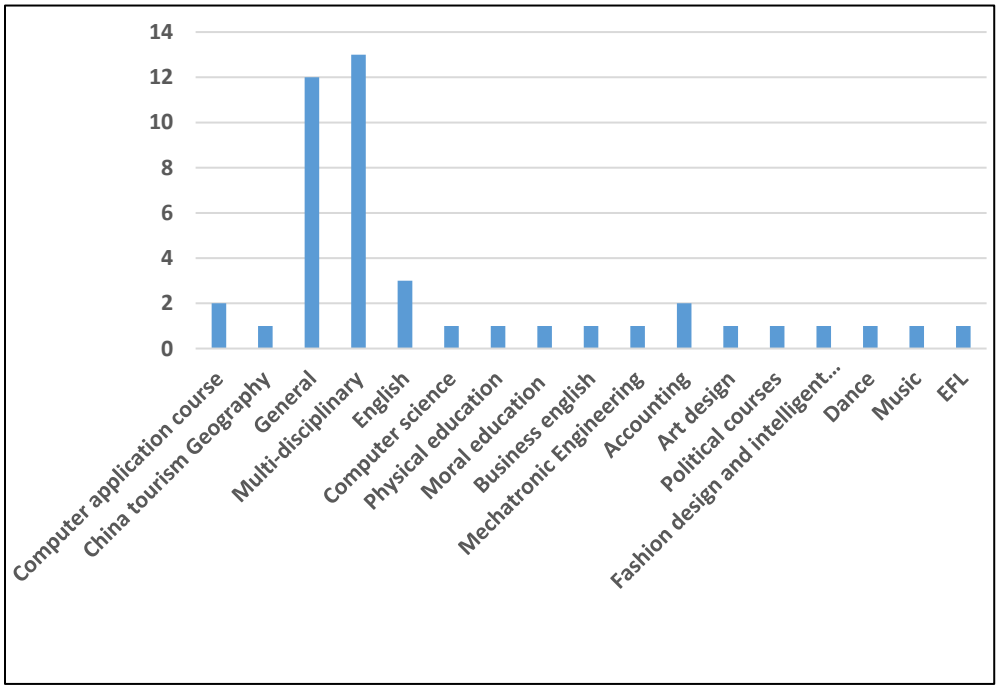


**Figure 6: Subject Area-wise Research Distribution**

In alignment with the research objectives, the findings have been systematically organized into sub-themes under three overarching themes, each directly addressing one of the research questions: (1) the current status of ICT integration in TVET, (2) the barriers and challenges faced by educators, and (3) the best practices and models for effective ICT utilization. This thematic classification provides a structured and focused framework for analyzing the data and ensures a comprehensive exploration of ICT integration in Chinese TVET. The details of these findings are presented in the following sections.

## Current State of ICT Integration by TVET Teachers in China

The current state of ICT integration by TVET teachers in China reveals a dynamic landscape shaped by diverse teaching approaches, technological innovations, and institutional practices. This section presents findings from the reviewed literature, highlighting key dimensions of ICT integration, including blended learning strategies, the adoption of Massive Open Online Courses (MOOCs) and other educational resources, mobile learning, virtual reality applications, gamification, and other innovative interventions. These findings not only demonstrate the breadth of ICT adoption in Chinese TVET but also underscore the transformative potential and ongoing challenges associated with its implementation. The following subsections provide a detailed exploration of these dimensions.

**Blended Learning Approaches:** Blended learning in Chinese TVET has demonstrated significant potential across multiple dimensions, as evidenced by various studies. For instance,

the application of the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model in English courses at Shandong Vocational College of Industry has been shown to enhance both teaching quality and student engagement (Yao, 2021). Beyond individual case studies, blended learning offers broader advantages, including fostering interactivity, independent learning, teamwork skills, and curiosity, all of which contribute to improved educational quality (Shen, 2024). These findings align with the TPACK framework, where effective integration of technological and pedagogical knowledge enables teachers to design more interactive and learner-centered instructional environments.

The adoption of blended learning has been notably accelerated by the COVID-19 pandemic, particularly through Small Private Online Courses (SPOCs). Key factors influencing English as a Foreign Language (EFL) instructors' (n = 63) utilization of blended learning strategies include satisfaction with curricular platforms, institutional support, evaluation mechanisms, and teachers' motivation and value perception of SPOC-based teaching (Jiang, 2022). These factors highlight the importance of TPB constructs, such as perceived behavioral control and subjective norms, in facilitating the adoption of new teaching methods during periods of rapid change.

In addition, a novel assessment model for evaluating the effectiveness of blended learning has demonstrated that blended courses align well with learners' expectations. These courses significantly enhance learning outcomes, provide real-time feedback, and deliver precise evaluations (Yang, 2024). Such findings underscore the alignment of blended learning with BDT, particularly in fostering higher-order cognitive skills such as analysis and evaluation. This reinforces the idea that blended learning surpasses traditional methods in fostering student engagement and academic achievement.

**MOOCs and Educational Resources:** The integration of MOOCs in Chinese TVET presents both significant opportunities and notable challenges. Recent studies demonstrate that MOOCs significantly enhance student motivation, learning efficiency, and resource utilization among vocational college students (n = 60) while also supporting lesson planning and improving instructional quality (Ji, 2016b). These benefits are particularly evident in their ability to foster higher-order cognitive skills, such as analysis, evaluation, and creative problem-solving. For instance, interactive features like real-time quizzes, peer-reviewed assignments, and scenario-based simulations enable students to apply theoretical knowledge in practical contexts, a critical aspect of vocational training. By offering diverse learning resources and promoting independent inquiry, MOOCs align closely with the principles of BDT, preparing students for complex problem-solving tasks required in professional environments.

However, challenges persist, particularly in teacher adoption. Educators have expressed uncertainties about the effectiveness of MOOCs and concerns regarding the transition to new pedagogical approaches (Ji, 2016b). This highlights the need for greater institutional support, particularly in providing training and resources to help teachers effectively integrate MOOCs into their practices. Without such support, the full potential of MOOCs in advancing TVET reform cannot be realized.

The dual potential and limitations of MOOCs emphasize the importance of standardized, high-quality MOOCs tailored to industry demands and capable of preparing students with professional competencies. As dynamic supplementary resources, MOOCs integrate interactive features and assignments into existing curricula. However, their success hinges on robust faculty

training programs and feedback mechanisms, which address diverse learning styles and enable educators to adapt their teaching practices effectively (Ma, 2019).

**Mobile Learning, Virtual Learning, and Gamification:** The landscape of TVET classrooms in China is undergoing a profound transformation driven by rapid advancements in ICT. Mobile learning has emerged as a widely adopted tool for enhancing student engagement and learning outcomes. For instance, integrating mobile internet terminals into physical education lessons significantly improved both student behavior and interest in education (Shi et al., 2021). Similarly, the app Superstar Learning Pass, developed for computer science education, demonstrated that blended learning approaches facilitated by mobile technology not only enhance academic performance but also foster positive student attitudes compared to traditional methods (Liu et al., 2019). However, challenges remain. Research on mobile apps in moral education revealed conflicting perceptions—students showed enthusiasm, while teachers were indifferent, and parents largely opposed their use. These challenges highlight the importance of TPB, as teachers' attitudes, subjective norms, and perceived behavioral control directly influence their willingness and confidence to adopt mobile learning (Liu & Xu, 2021). Furthermore, from a TPACK perspective, successful integration of mobile learning requires teachers to effectively combine technological knowledge with pedagogy and content to address diverse educational goals.

Virtual reality (VR) offers another promising avenue for enhancing TVET. The use of virtualization tools, such as VMware Workstation Pro, in vocational teaching facilitates simulation-based learning and the development of key competencies (Chen & Liu, 2021). Similarly, VR in art education improves engagement, creativity, and practical skills such as dance choreography (Zeng & Wang, 2022; Yang, 2023). However, VR's effectiveness relies heavily on implementation strategies. While it is effective for short-term information acquisition, research suggests that long-term retention is better supported by textual cues (Zhang et al., 2023a). These findings underscore the importance of teacher preparation and strategic support, aligning with TPACK, which emphasizes the need for teachers to skillfully integrate VR technology into curriculum design. Additionally, teachers' confidence and behavioral intentions, as described in TPB, are critical for overcoming challenges related to VR adoption.

Gamification holds substantial potential for addressing passive learning behaviors in TVET. The incorporation of game-like elements into curricula fosters interaction, engagement, and academic achievement (Wang et al., 2017). Features like leaderboards, reward systems, and interactive simulations motivate students and create a dynamic learning environment. These outcomes align with BDT, as gamification supports higher-order cognitive processes like problem-solving and critical thinking. However, successful integration requires teachers to have a deep understanding of the pedagogical principles behind gamification, which TPACK highlights as the intersection of technology and pedagogy. Moreover, teachers' perceptions of gamification's value, as described in TPB, play a pivotal role in determining its adoption and effectiveness.

Collectively, ICT applications such as mobile learning, VR, and gamification have been widely adopted by Chinese TVET educators. These technologies significantly improve learner engagement, performance, and educational experiences, signaling a shift towards more interactive teaching strategies. Hence, to fully realize their potential, robust teacher training

programs, institutional support, and research into best practices for integrating these technologies are essential.

**Other Technology Interventions:** Several studies have examined the impact of ICT interventions on TVET in China, showcasing a variety of innovative practices and outcomes. For instance, Emergency Remote Teaching (ERT) during the COVID-19 pandemic demonstrated how universities effectively leveraged online platforms and software to adapt to the crisis. Teachers developed tailored digital materials, guiding organizations to establish resilient systems for future emergencies (Jing et al., 2023). These practices highlight the importance of perceived behavioral control from TPB, as teachers' confidence in their ability to adapt during crises is critical to their success. Additionally, TPACK emphasizes the need for teachers to integrate technological and pedagogical knowledge effectively, particularly when designing digital materials for emergency scenarios.

The transformative role of artificial intelligence (AI) and multimedia resources in fostering creativity and musical understanding has also been explored. Findings revealed a 25% increase in innovation levels and a 30% improvement in rhythm recognition among higher vocational college students, showcasing the potential of digital teaching aids in enhancing music pedagogy (Shi, 2024). These results align with TPACK, as they illustrate how teachers can integrate technology with domain-specific pedagogy to enhance learning outcomes.

Multimedia teaching has further demonstrated its effectiveness in English instruction at vocational colleges by enhancing learning personalization and engagement. Techniques such as role-play and multimedia materials enable students to interact more dynamically with content, fostering an engaging learning environment (Ji, 2016a). Additionally, multimedia networks have been employed to bridge the gap between business English skills demanded by employers and vocational education practices. For instance, experimental programs integrating "simulated practice" and "in-field training" have improved students' communication, teamwork, and practical English skills while also fostering internship opportunities (Cheng & Liu, 2021). These applications reflect the intersection of technology and content knowledge within TPACK, enabling teachers to address real-world vocational needs.

Project-based learning has also emerged as an effective approach for teaching subjects like fashion design and intelligent manufacturing. Networked virtual systems for project management instruction have demonstrated significant advantages over traditional methods, enhancing interactivity and practical application (Pan & Xia, 2023). Similarly, the application of Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) technology in evaluating online instruction revealed a strong correlation between robust training, effective evaluation methods, and high assessment ratings (Zheng, 2023). These findings highlight the importance of institutional support and training in equipping teachers with the skills necessary for integrating innovative technologies into their pedagogy programs.

Furthermore, a large-scale survey by Han et al. (2020) involving 1,300 vocational institutions and 11,000 high schools shed light on the widespread adoption of online instruction during the pandemic. Most schools have adequate infrastructure, with over half of the resources comprising temporary digital tools developed by teachers and teams. Notably, 78% of teachers reported that technology enhanced their teaching capacity, while 47% of students experienced enriched learning outcomes. The popularity of live broadcasting, with over 90% of teachers creating original materials, underscores the growing reliance on digital platforms in vocational education.

These findings align with TPB, as they emphasize how teachers' attitudes and external support influence their adoption of ICT tools, particularly during periods of rapid change.

Collectively, ICT interventions such as ERT, AI-enhanced learning, multimedia teaching, and project-based approaches have significantly transformed TVET in China. By fostering innovation, enhancing engagement, and addressing vocational needs, these technologies underscore the critical role of ICT in modernizing vocational education. Therefore, to fully realize their potential, it is essential to provide robust training for teachers, develop standardized resources, and promote sustained institutional support.

**Standards of ICT Competency:** Investigations into the ICT competency levels of TVET teachers in China reveal notable progress while highlighting critical areas for further development. IT instruction competence, as examined through the TPACK, underscores the transformative impact of skillfully integrating digital technology with pedagogy and content knowledge on teaching effectiveness (Xu et al., 2024). This framework emphasizes that effective ICT integration is not merely about technological familiarity but about aligning digital tools with pedagogical strategies and curriculum objectives to enhance learning outcomes.

Despite these advancements, challenges remain. A significant knowledge gap exists regarding green technology, particularly its alignment with industry demands and its incorporation into curriculum development. This gap hinders the ability of TVET programs to prepare students for evolving market requirements (Li et al., 2023). From a TPACK perspective, this challenge reflects the need for teachers to acquire not only technological knowledge but also domain-specific expertise to meet the demands of emerging industries.

In addition, teacher support plays a pivotal role in fostering ICT competency. Studies highlight a positive relationship between effective teacher-student interactions and both student digital literacy and the perceived usefulness of technology (Chen & Ma, 2022). These findings align with TPB, as external support and resources significantly influence teachers' attitudes, perceived behavioral control, and ultimately, their ability to integrate ICT into their teaching practices. However, many teachers still report a lack of sufficient training, which undermines their confidence in using internet-based services and other ICT tools effectively.

Collectively, these studies emphasize the urgent need for sustainable professional development programs and strategic curriculum adjustments to address existing gaps. By providing targeted training, fostering institutional support, and aligning ICT competencies with industry standards, Chinese TVET educators can better equip students for an ICT-driven future. These initiatives must prioritize the integration of emerging technologies, such as green technology, into teaching practices, ensuring that TVET remains relevant in a rapidly changing global economy.

**Factors Influencing ICT Adoption:** ICT integration among TVET teachers in China is shaped by a complex interplay of internal and external factors. Key internal factors, such as computer self-efficacy, perceived ease of use, and perceived utility, have been identified as critical predictors of ICT adoption and satisfaction among vocational college teachers (Bin et al., 2020). These findings align with the Technology Acceptance Model (TAM), which emphasizes that teachers are more likely to adopt ICT when they perceive it as useful and easy to use. From the perspective of TPB, internal beliefs, including teachers' psychological comfort with technology and their attitudes toward its value, play a pivotal role in shaping behavioral intentions and actual

usage (Yang et al., 2023). Strengthening these internal competencies is essential to fostering a culture of effective ICT integration in educational settings.

External support is equally critical in driving ICT adoption. Studies highlight that institutional factors, such as access to teaching resources, course design support, and professional development opportunities, significantly impact teachers' confidence and willingness to use ICT (Han et al., 2018). Gender disparities and variations in job roles, such as teaching assistants facing unique challenges, further underscore the need for tailored support that addresses the diverse needs of faculty members. These findings emphasize that external support must go beyond providing resources; it should also include mentoring, technical assistance, and clear institutional policies that encourage technology use.

Moreover, external factors influencing ICT adoption have been extensively explored through TAM, reinforcing that perceived usefulness and ease of use are the most significant determinants of adoption (Wang & Han, 2018). However, studies have also revealed that perceived helpfulness alone is insufficient to drive actual usage, underscoring the need for more comprehensive support systems that address barriers to implementation (Bin et al., 2020). This includes ongoing professional development programs that equip teachers with the skills and confidence necessary to integrate ICT effectively into their teaching practices.

Therefore, to address these challenges, a dual-pronged approach is essential. First, efforts must focus on enhancing teachers' internal beliefs and technology proficiency through holistic pedagogical development. Initiatives such as competition-based training programs can encourage skill enhancement and foster the sharing of best practices within the teaching community. Second, robust external support must be provided, tailored to the specific roles and needs of educators within the TVET system. By simultaneously addressing internal and external factors, Chinese TVET educators can be better equipped to meet the demands of modern vocational education, ensuring sustainable and effective ICT integration (Zhou et al., 2023).

**Case Studies on Effective Integration of ICT:** Several Chinese TVET institutions have demonstrated successful models of ICT integration, showcasing innovative practices in teaching, training, and professional development. Shenzhen Polytechnic, for instance, developed the Integrated Competency Training Model in 2018 to enhance resourcefulness, teaching effectiveness, and instructional design among vocational educators (Zhang et al., 2023b). This model incorporates advanced technology-supported elements, including smart teaching platforms, XR-based learning environments, facial recognition systems, and big data-enabled classrooms. These technologies create adaptable learning environments and foster technical and vocational skills, aligning with the TPACK framework, which highlights the integration of technological, pedagogical, and content knowledge in modern teaching practices.

Chengdu Vocational and Technical College (CVTC) has similarly prioritized ICT integration by introducing 38 programs to enhance teachers' digital proficiency and align with regional business needs (Zhang et al., 2023b). The college established the Faculty ICT Competency Standards, focusing on five core areas: accountability, curriculum, instruction, assessment/tools, and innovative research. These standards provide a structured framework for professional development, with training programs addressing practical topics such as creating electronic textbooks, designing PowerPoint presentations, and developing micro-lessons. CVTC's success underscores the importance of institutional support in fostering teacher proficiency and aligns

with the principles of TPB, as external support and perceived ease of use directly influence ICT adoption.

Another notable example is the Wuxi Vocational Institute of Commerce, which transformed its traditional curriculum into an ICT-based framework (Cai & Qian, 2021). The institute features a digital virtual campus equipped with data centers, universal authentication systems, and cluster computing centers. Its infrastructure includes over 200 multimedia classrooms and 40 multi-use spaces for webinars, chats, and videoconferences. Additionally, Wuxi developed the E-Classroom, a blended learning platform designed to enhance interactive and efficient teaching practices. These efforts reflect the application of both TPACK and BDT, as they integrate advanced digital tools to support higher-order cognitive skills and improve teaching outcomes.

Shouguan Vocational School, established in 2016, has adopted a data-driven strategy to address teachers' professional development (Zhang et al., 2023b). The school emphasizes continuous professional growth through teaching contests and whole-school training sessions, complemented by external trainers introducing interactive teaching methods. Since 2017, Shouguan has fostered a community of practice, organizing teaching competitions and supporting teachers in developing exams, forums, online resources, and survey tools. Digital teaching proficiency has become a key evaluation criterion for academic personnel, solidifying the school's reputation as a leader in innovative teacher training. These practices align with TPB, as they address teachers' attitudes, subjective norms, and perceived behavioral control, creating a supportive environment for ICT adoption.

These case studies illustrate the diverse and effective strategies employed by Chinese TVET institutions to integrate ICT into teaching and professional development. By leveraging advanced technologies and structured training programs, these institutions have set benchmarks for fostering digital competency and modernizing vocational education. Hence, to further enhance these efforts, institutions must continue to align training initiatives with industry demands, provide sustainable support systems, and promote best practices that encourage widespread adoption of ICT.

**Barriers and Challenges Faced by TVET Teachers when Integrating ICT**

Despite the growing emphasis on ICT integration in TVET, teachers face a range of barriers that hinder effective implementation. These challenges span technological limitations, training deficits, privacy concerns, and institutional gaps.

**Outdated and Insufficient Technologies:** A study by Ouyang (2017) revealed that outdated multimedia technologies and low-quality courseware in higher vocational education in China significantly impede the integration of ICT into curricula. These deficits, coupled with insufficient teacher-student interaction, limit the effectiveness of network technologies. Similarly, Cai and Qian (2021) identified critical issues with the E-Classroom Education Platform (ECEP) at Wuxi Vocational Institute of Commerce, including buffering, inadequate bandwidth, and slow internet speeds. These findings align with the TPACK framework, which underscores that ICT integration requires not only technological availability but also the infrastructure that supports seamless and interactive learning environments.

**Lack of Training and Support:** The lack of robust teacher training programs and digital resource platforms further exacerbates the challenges of ICT adoption. For example, the quality

and competitiveness of MOOCs in China have been criticized, particularly during the COVID-19 pandemic, when vocational teachers struggled with emergency remote teaching. Challenges included low-immersive experiences, ineffective live-streaming capabilities, and limited interactive functions, compounded by a lack of intelligent learning tools and insufficient software resources (Ma, 2019; Jing et al., 2023). These issues highlight the importance of TPB, as inadequate training and external support negatively impact teachers perceived behavioral control and their confidence in adopting ICT.

**Teacher and Student Preparedness:** A large-scale study involving 17,009 teachers across 110 vocational institutes during the COVID-19 pandemic revealed significant deficiencies in online learning readiness (Han et al., 2020). Key barriers included teachers' insufficient ICT knowledge and skills, students' poor e-learning practices, and limited institutional support. These findings emphasize that successful ICT integration requires addressing both teachers' internal competencies, as outlined in TPACK, and external environmental factors, as emphasized by TPB, to create a supportive ecosystem for technology adoption.

**Privacy and Security Concerns:** The integration of ICT also raises significant privacy and security issues. Studies have identified risks such as data misuse, privacy breaches, and ethical challenges associated with big data technologies and wearable devices. For instance, contemporary multimedia instructions for accounting courses have raised concerns about personal information being compromised during storage and processing (Yu, 2022; Cai & Qian, 2021). These challenges necessitate the development of robust policies and technologies to safeguard data integrity and ensure ethical ICT integration.

**Pedagogical and Practical Challenges:** Teachers often encounter practical difficulties when attempting to integrate ICT into their teaching practices. For example, creating multimedia presentations for accounting courses has increased the time required for data analysis and comparison, negatively impacting students' learning experiences (Yu, 2022). Similarly, inefficiencies in live streaming, such as limited interactivity and low immersion, further hinder the effectiveness of remote teaching (Jing et al., 2023). These challenges highlight the need for professional development programs that align with TPACK, enabling teachers to effectively combine technological tools with pedagogical strategies.

**Institutional and Policy Gaps:** Institutional and policy deficiencies further compound the challenges of ICT integration in TVET. Key issues include the lack of continuous research on online learning, rigid assessment methods, and insufficient reward structures for teachers. Many institutions also failed to establish long-term virtual teams or dedicated units for online learning, resulting in temporary and superficial ICT integration (Han et al., 2020). Addressing these gaps requires sustained institutional commitment and strategic policy reforms that promote continuous innovation in ICT adoption.

Collectively, these barriers underscore the multifaceted nature of ICT integration challenges in Chinese TVET. Addressing these issues will require a combination of robust infrastructure, teacher training aligned with TPACK, and institutional support that fosters confidence and motivation, as emphasized by TPB. Additionally, comprehensive policies that prioritize sustainable ICT integration and safeguard data privacy will be essential for achieving meaningful progress.

**Strategies and Practices for Enhancing ICT Integration by TVET Teachers**

Several strategies and practices have been proposed to address the barriers hindering ICT integration in TVET, focusing on updating teaching technologies, integrating ICT into curricular instruction, and strengthening campus information ecosystems. These approaches emphasize the importance of teacher training, innovative learning models, and personalized support systems.

**Raising Awareness and Knowledge:** Raising awareness and enhancing TVET teachers' knowledge of contemporary technologies is a critical step in promoting effective ICT integration. For instance, the integration of virtual reality technology (VRT) into curriculum design has been identified as a way to strengthen teachers' competencies and enhance students' interactive skills (Jiang & Lai, 2016). Similarly, Mobile Assisted Language Teaching (MALT) has shown potential in improving instruction, particularly in English lessons. However, teachers must actively address negative perceptions of mobile technology among economically disadvantaged students, emphasizing its benefits and providing guidance to foster equitable access (Wu, 2019). From a TPACK perspective, these practices demonstrate the importance of equipping teachers with the knowledge and skills to seamlessly integrate emerging technologies with pedagogy and content.

**Blended and Hybrid Learning Models:** Blended and hybrid learning models have been widely proposed to improve technology integration in education. For example, the i-Experiment Teaching Model combines online platforms, course materials, and big data analytics to create a blended learning environment that promotes inquiry and collaboration (Zhang et al., 2015). Similarly, the three-stage asynchronous flipped classroom model incorporates pre-class online learning, in-class interactive activities, and post-class consolidation to enhance student performance, collaboration, and engagement (He, 2020). In language education, the MOOC+SPOC hybrid model integrates the strengths of both platforms, focusing on interaction, feedback mechanisms, and the effective utilization of learning materials, resulting in increased student interest and improved outcomes (Qiu, 2022). These models align with TPB, as they address both teachers' perceived ease of use and usefulness of blended learning tools, enhancing their adoption and application.

**Professional Development and Competency Frameworks:** Professional development programs rooted in well-defined competency frameworks are essential for fostering ICT integration. For instance, a teaching competency framework for vocational teachers emphasizes professional knowledge, information literacy, and the ability to develop innovative educational resources (Diao & Yang, 2021). Similarly, the Teaching Competency Scale for TVET teachers highlights the role of digital literacy in developing instructional resources and integrating technology into teaching (Diao & Hu, 2022). These frameworks provide a foundation for lifelong learning and aim to align teacher training with the principles of TPACK, ensuring teachers are prepared to integrate technology effectively into their pedagogy programs.

**Innovative Teaching and Learning Platforms:** Developing innovative platforms has been a critical strategy for enhancing ICT integration. For example, the i-Experiment platform creates a unified online-offline environment to support blended learning (Zhang et al., 2015). Additionally, an action-oriented internet teaching platform incorporates collaborative filtering and real-world work processes to personalize instruction and improve outcomes (Li, 2022; Miao

et al., 2021). These platforms emphasize the TPACK framework, enabling teachers to effectively utilize technology for personalized and action-oriented learning.

**Personalized and Data-Driven Approaches:** ICT integration in vocational education benefits significantly from personalized and data-driven approaches. For instance, a deep learning-based system for vocational teacher development facilitates tailored training programs by analyzing teaching experience, academic achievements, and student feedback (Zhang et al., 2024). Similarly, for "double-qualified" teachers in higher vocational schools, a four-dimensional digital cultivation model enhances digital application levels and correlates classroom performance with work evaluations (Dai, 2024). These approaches reflect the principles of TPB, as they address teachers' behavioral intentions and confidence by providing individualized guidance and robust feedback mechanisms.

Collectively, these strategies highlight the importance of a holistic approach to ICT integration, combining teacher training, innovative teaching models, competency frameworks, and personalized support systems. By aligning these practices with the TPACK and TPB frameworks, Chinese TVET educators can better prepare both teachers and students for an ICT-driven future.

## Findings, Implications, and Recommendations

This study identified three key themes regarding ICT integration in Chinese TVET settings, based on a thematic analysis of 44 studies:

### 4.1 Findings

**Increasing Adoption of ICT Tools in Pedagogical Practice:** TVET teachers in China are progressively adopting ICT tools such as blended learning platforms, MOOCs, virtual laboratories, and simulation-based instruction. These technologies have been reported to enhance student engagement, learning flexibility, and instructional effectiveness (Yang, 2024; Ji, 2016b; He, 2020). For instance, MOOCs were noted to improve access and learning efficiency (Zhang et al., 2023a), while VR-based tools and gamification significantly increased student motivation and supported vocational skill development (Zeng & Wang, 2022; Wang et al., 2017). However, adoption remains uneven across institutions and disciplines, reflecting disparities in resource availability, pedagogical adaptability, and support structures (Chen & Liu, 2021; Ma, 2019).

**Barriers Hindering Effective Integration:** Despite growing use, systemic barriers continue to hinder effective ICT integration. These include insufficient digital infrastructure, limited teacher training, lack of technical support, and weak institutional policy enforcement (Han et al., 2020; Jing et al., 2023). Teachers in rural or underdeveloped regions particularly struggle with confidence and competence in utilizing ICT tools (Ouyang, 2017; Cai & Qian, 2021). The lack of sustained professional development and the absence of ICT-related incentives further limit meaningful implementation (Ma, 2019; Chen & Bin, 2024).

**Emerging Practices and Competency Frameworks:** Promising practices have emerged, particularly in institutions that employ structured training based on the TPACK framework or integrate AI-driven personalized learning support (Zhang et al., 2023b; Dai, 2024). For example,

Chengdu Vocational and Technical College's competency standard system offers a scalable model of digital upskilling for teachers. Other institutions adopted peer-mentoring and hybrid learning platforms, such as SPOCs and flipped classrooms, which align instructional design with vocational learning goals (He, 2020; Qiu, 2022).

**Key Technologies Supporting Vocational Learning:** Several ICT tools identified in this review stood out for their distinctive potential to enhance vocational education through immersive and practical learning experiences. Virtual reality (VR), simulation platforms, and gamification systems emerged as particularly impactful in the TVET context. These technologies offer immersive environments that simulate real-life vocational tasks, allowing students to develop procedural and problem-solving skills in safe and repeatable settings (Zeng & Wang, 2022; Wang et al., 2017). For instance, VR-assisted welding simulations or healthcare training modules enable learners to engage in high-fidelity practice without access to expensive or hazardous equipment. From a pedagogical perspective, these tools align well with Bloom's Digital Taxonomy, especially at the "applying," "analyzing," and "creating" levels, by encouraging active learning and critical thinking. Their integration also requires a solid foundation of technological-pedagogical knowledge, reinforcing the importance of sustained TPACK development for vocational educators.

**Implications**

The findings of this review have several implications for theory development, policy implementation, and instructional practices in the context of ICT integration within Chinese TVET.

**Theoretical Implications:** This study demonstrates the value of integrating TPACK, TPB, and BDT as a multi-dimensional lens for examining ICT integration. The use of TPACK effectively captures the complexity of teachers' technological and pedagogical competence (Zhang et al., 2023b), while TPB explains motivational discrepancies, including low perceived behavioral control and inadequate institutional norms (Han et al., 2020; Jing et al., 2023). BDT enables assessment of cognitive engagement levels and reveals that most ICT applications in TVET are still concentrated on lower-order cognitive tasks such as "remembering" and "understanding," with limited use for "evaluating" and "creating" (Zeng & Wang, 2022; Qiu, 2022).

The combination of these frameworks provides a more nuanced understanding of ICT integration that goes beyond technical implementation, offering a structured means of capturing not only what teachers do with technology, but also why and how they do it, and to what pedagogical effect.

**Contextual Relevance:** National policies such as the "Education Informatization 2.0" plan and "Smart Education of China" initiative have played a pivotal role in driving ICT integration across TVET institutions. However, the review reveals a noticeable gap between policy goals and implementation outcomes. While policies advocate for widespread digital transformation, many schools face challenges in translating these goals into actionable strategies, particularly due to infrastructural limitations, unclear implementation guidelines, and the absence of monitoring or incentive mechanisms (Chen & Bin, 2024; Jing et al., 2023).

In some cases, policy implementation has been interpreted as a checklist task rather than a pedagogical reform, leading to superficial adoption of ICT tools. To maximize policy

effectiveness, stronger feedback loops, localized adaptation, and school-level ownership of policy goals are necessary. Institutional leaders must be empowered not only to enforce policy compliance but also to contextualize national goals in their specific vocational settings.

**Practical Implications:** For practitioners, the findings suggest that effective ICT integration requires not just technical training but also attitude-oriented and collaborative professional development. Programs that foster peer mentorship and reflect real classroom needs—such as the "ICT Teaching Application Capability Training" in Chengdu—are more likely to succeed (Zhang et al., 2023b; Dai, 2024).

For institutional leaders, building supportive environments through recognition mechanisms, technical support teams, and flexible digital policies can significantly boost teacher engagement and innovation (Jing et al., 2023; He, 2020).

For policymakers, the review reveals a policy-practice gap: while macro-level policies are progressive, they often fail to translate into operational strategies at the school level. Stronger vertical coordination and feedback loops are essential to enhance implementation fidelity (Ouyang, 2017; Cai & Qian, 2021).

**Limitations and Future Research:** This review is limited by its reliance on secondary data, with most included studies conducted in eastern and central regions. Empirical fieldwork—such as teacher interviews, classroom observations, or longitudinal tracking—would strengthen future research. Moreover, comparative studies between different provinces or across national contexts would help to contextualize China's ICT integration efforts globally and test the generalizability of the proposed framework.

**Recommendations**

Based on the findings and their theoretical and practical implications, the following evidence-based and actionable recommendations are proposed for key stakeholders including teachers, institutional leaders, and policymakers.

**Develop Integrated and Personalized Professional Development:** Training programs should be grounded in the TPACK framework while also addressing behavioral and motivational dimensions outlined in the TPB model. This includes not only technical skills training but also reflective activities that enhance teachers' confidence, perceived control, and positive attitudes toward ICT use. Successful examples, such as the competency-based ICT training in Chengdu Vocational and Technical College, illustrate the benefits of structured, tiered learning pathways (Zhang et al., 2023b; Dai, 2024).

Moreover, personalization using AI or data-driven adaptive learning can tailor professional development to individual teachers' needs, improving both engagement and outcomes (Dai, 2024).

**Establish Regionally Differentiated ICT Integration Strategies:** Given the uneven distribution of resources and support across China, it is essential to develop region-specific ICT strategies. Local education authorities should be empowered to implement flexible policies and allocate targeted resources based on regional conditions (Chen & Bin, 2024). Prior studies have shown that rigid, centralized approaches often fail in underdeveloped areas due to infrastructure and personnel limitations (Ouyang, 2017; Cai & Qian, 2021).

**Strengthen School-Based Support and Recognition Systems:** Institutional leaders should establish support structures that encourage experimentation and sustained ICT use. These include creating digital innovation teams, offering incentives for technology-enhanced teaching, and facilitating peer collaboration through communities of practice (He, 2020; Jing et al., 2023). Without institutional-level reinforcement, even well-designed national policies may not produce meaningful change at the classroom level.

**Promote Cognitive Depth in Technology Use:** Teachers should be encouraged and supported to use ICT not only for content delivery, but also for developing students' higher-order thinking skills—such as critical analysis, evaluation, and creative problem-solving—as emphasized in Bloom's Digital Taxonomy. Tools like VR simulation, project-based platforms, and gamified learning environments should be integrated strategically into lessons (Zeng & Wang, 2022; Qiu, 2022).

# Appendices

**Table 2: Data Extraction Table**

| Sl. No. | Authors | Title | Year | Source title | Cited by | Document Type | Source | Description | Design | Subject area | Addressing RQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Ji Z. | Application and empirical investigation of new MOOC teaching system in computer application course | 2016 | Journal of Emerging Technologies in Learning | 11 | Article | Scopus | MOOC teaching system | Quantitative | Computer application course | RQ1 |
| 2 | Jiang, G., & Lai, B. | Virtual Reality Technology in Higher Vocational Education "China Tourism Geography" Teaching Application | 2016 | Advances in Social Science, Education and Humanities | 3 | Conference proceeding | Web of Science | Application of VR in geography teaching | Qualitative | China tourism Geography | RQ3 |
| 3 | Shaogang Z.; Shunping W.; Xuan Z.; Mobin W. | Research on the i-Experiment Teaching Model in Vocational Education | 2016 | Proceedings - 2015 International | 1 | Conference proceeding | Scopus | Model development | Qualitative | General | RQ3 |
| 4 | Ouyang W. | Application strategy of modern network technology in higher vocational teaching activities | 2017 | Eurasia Journal of Mathematics, Science and Technology Education | 2 | Article | Scopus | Application of modern network technology in higher vocational education (HVE) | Mixed method | Multi-disciplinary | RQ2 |
| 5 | Wang F.; Wang Y.; Hu X. | Gamification teaching reform for higher vocational education in China: A case study on Layout and Management of Distribution Center | 2017 | International Journal of Emerging Technologies in Learning | 12 | Article | Scopus | Gamification teaching reform | Mixed method | General | RQ1 |
| 6 | Ji X. | Study on internet information technology in English teaching in higher vocational college | 2017 | Proceedings - 2016 8th International Conference on Information Technology in Medicine and Education, ITME 2016 | 2 | Conference proceeding | Scopus | Model development | Qualitative | English | RQ1 |
| 7 | Han, JY; Yin, HB; Wang, JJ | A case study of faculty perceptions of teaching support and teaching efficacy in China: characteristics and relationships | 2018 | HIGHER EDUCATION | 22 | Article | Scopus | Perception of teachers | Quantitative | Multi-disciplinary | RQ1 |
| 8 | Wang, W; Han, X | Some factors influencing teachers' intention to use ICT in teaching in Secondary Vocational Schools in China | 2018 | Seventh International Conference of Educational Innovation through Technology (EITT) | 2 | Conference proceeding | Web of Science | Factors influencing teachers' use of ICT | Quantitative | General | RQ1 |
| 9 | Wu R. | The effectiveness of malt on vocational college english teaching | 2019 | Journal of Language Teaching and Research | 0 | Article | Scopus | Effective use of MALT in english teaching | Quantitative | Multi-disciplinary | RQ3 |
| 10 | Ma, W | Development and Application of Mooc in Higher Vocational Education under the Background of Informatization | 2019 | 3rd International Conference on Advancement of the Theory and Practices in Education (ICATPE 2019) | 0 | Conference proceeding | Web of Science | Application of MOOC in higher vocational institutes | Qualitative | General | RQ1, RQ2 |
| 11 | Liu, Q., Yang, H., Ba, S., Wang, Y., & Zhao, W. | Blended learning Using Mobile APP in Secondary Vocational Instruction: Design and Implementation | 2019 | Proceedings of the 10th international conference on e-education, e-business, e-management and e-learning | 1 | Conference proceeding | Scopus | Using mobile app in blended app | Quantitative | Computer science | RQ1 |

| Sl. No. | Authors | Title | Year | Source title | Cited by | Document Type | Source | Description | Design | Subject area | Addressing RQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | Bin E.; Islam A.Y.M.A.; Gu X.; Spector J.M.; Wang F. | A study of Chinese technical and vocational college teachers' adoption and gratification in new technologies | 2020 | British Journal of Educational Technology | 25 | Article | Scopus | Factors influencing TVET teachers' adoption and appreciation of ICT | Quantitative | Multi-disciplinary | RQ1 |
| 13 | He, J | Construction of three-stage asynchronous instructional mode of blended flipped classroom based on Mobile learning platform | 2020 | EDUCATION AND INFORMATION TECHNOLOGIES | 12 | Article | Web of Science | Construction of "three-stage asynchronous" instructional mode of blended flipped classroom based on Mobile learning platform | Hybrid method of qualitative, quantitative and action research | General | RQ3 |
| 14 | Diao J.-F.; Yang J. | Multiple-role perspective on assessing teaching ability: reframing TVET teachers' competency in the information age | 2021 | Journal of Educational Technology Development and Exchange | 5 | Article | Scopus | To establish a framework, criteria, and assessing instrument for vocational teachers' teaching competency in using ICT | Quantitative | Multi-disciplinary | RQ3 |
| 15 | Shi X.; Li X.; Wu Y. | The application of computer-aided teaching and mobile internet terminal in college physical education | 2021 | Computer-Aided Design and Applications | 11 | Article | Scopus | Effect of computer-assisted teaching in PE | Quantitative | Physical education | RQ1 |
| 16 | Liu G.; Xu Y. | Application of mobile app in moral education course teaching based on intelligent internet of things | 2021 | Mobile Information Systems | 3 | Article | Scopus | using mobile app in moral education | Mixed method | Moral education | RQ1 |
| 17 | Han X.; Zhou Q.; Shi W.; Yang S. | Online Learning in Vocational Education of China during COVID-19: Achievements, Challenges, and Future Developments | 2021 | Journal of Educational Technology Development and Exchange | 16 | Article | Scopus | analysis of online education during covid-19 | Mixed method | Multi-disciplinary | RQ2 |
| 18 | Cheng X.; Liu K. | Application of Multimedia Networks in Business English Teaching in Vocational College | 2021 | Journal of Healthcare Engineering | 16 | Article | Scopus | Effective use of multimedia network in English teaching | Mixed method | Business english | RQ1 |
| 19 | Yao, Y | Blended teaching reform of higher vocational education based on addie teaching design model. | 2021 | Journal of Frontiers of Society, Science and Technology | 5 | Article | Web of Science | Developing teaching model for blended mode teaching in English | Model developemnt | English | RQ1 |
| 20 | Chen, T.; Liu, H | Research and Practice of Online and Offline Hybrid Teaching of Virtualization Technology Course in Higher Vocational Colleges | 2021 | 6th International Conference on Education Reform and Modern Management (ERMM 2021) | 3 | Conference proceeding | Scopus | Teaching mode of virtualization technology | Qualitative | General | RQ1 |
| 21 | Cai, J., & Qian, X. | Effect of new ICTs on vocational education in China: A case study of Wuxi Vocational Institute of Commerce. | 2021 | Business Innovation with New ICT in the Asia-Pacific: Case Studies | 1 | Book chapter | Scopus | Case study on Wuxi Vocational Institute of Commerce | Qualitative | General | RQ1, RQ2 |
| 22 | Miao Y.; Li Y.; Du X.; Pu M. | Scripting an integrated learning and work process to scaffold online action-oriented learning | 2021 | IEEE Global Engineering Education Conference, EDUCON | 0 | Conference proceeding | Scopus | Providing online scaffolding | Mixed method | Mechatronic Engineering | RQ3 |

| Sl. No. | Authors | Title | Year | Source title | Cited by | Document Type | Source | Description | Design | Subject area | Addressing RQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Qiu X. | Blended Teaching Mode of Higher Vocational English Based on MOOC+SPOC | 2022 | Wireless Communications and Mobile Computing | 4 | Article | Scopus | Using MOOC+ SPOC for english writing | Quantitative | English | RQ3 |
| 24 | Yu H. | Research on Multimedia Teaching and Teaching Reform Innovation of Accounting Major in Higher Vocational Colleges under the Background of Big Data and Internet of Things | 2022 | Wireless Communications and Mobile Computing | 3 | Article | Scopus | Multimedia Teaching and Teaching Reform Innovation of Accounting Major in Higher Vocational Colleges under the Background of Big Data and Internet of Things | Quantitative | Accounting | RQ2 |
| 25 | Zeng Z.; Wang Q. | Integration of Virtual Reality CAD Technology and Classroom Teac hing for Higher Vocational College Art Design Major | 2022 | Computer-Aided Design and Applications | 0 | Article | Scopus | Using VR in art teaching | Exploratory | Art design | RQ1 |
| 26 | Chen, QY; Ma, Y | The influence of teacher support on vocational college students' information literacy: The mediating role of network perceived usefulness and information and communication technology self-efficacy | 2022 | FRONTIERS IN PSYCHOLOGY | 1 | Article | Web of Science | Effect of teachers' support on Digital literacy | Quantitative | Multi-disciplinary | RQ1 |
| 27 | Li J. | Exploration on the Action-Oriented Teaching Mode of Higher Vocational Political Courses under the Background of Internet + Education | 2022 | Advances in Multimedia | 3 | Article | Scopus | Design of a Personalized online education platform | Quantitative | Political courses | RQ3 |
| 28 | Diao, J., & Hu, K | Preparing TVET teachers for sustainable development in the information age: Development and application of the TVET teachers' teaching competency scale. | 2022 | Sustainability | 2 | Article | Web of Science | Developing scale to measure TVET teachers' competency | Quantitative | Multi-disciplinary | RQ3 |
| 29 | Li H.; Khattak S.I.; Lu X.; Khan A. | Greening the Way Forward: A Qualitative Assessment of Green Technology Integration and Prospects in a Chinese Technical and Vocational Institute | 2023 | Sustainability (Switzerland) | 1 | Article | Scopus | Teachers' competency in green technology | Qualitative | Multi-disciplinary | RQ1 |
| 30 | Yang C.; Guo R.; Cui Y. | What Affects Vocational Teachers' Acceptance and Use of ICT in Teaching? A Large-Scale Survey of Higher Vocational College Teachers in China | 2023 | Behavioral Sciences | 6 | Article | Scopus | Factors affecting teachers' acceptance and use of ICT | Quantitative | Multi-disciplinary | RQ1 |
| 31 | Pan L.; Xia Z. | Reform and Practice of Project-Based Teaching Mode Based on Online Open Course Platform | 2023 | International Journal of Emerging Technologies in Learning | 0 | Article | Scopus | Integration of technology, PBL | Case-study | Fashion design and intelligent manufacturing | RQ1 |
| 32 | Zheng Y. | Evaluation of Online Teaching Effect of Vocational College Teachers Based on TOPSIS Technology and the Hierarchical Chi-Square Model | 2023 | International Journal of Emerging Technologies in Learning | 0 | Article | Scopus | Teachers' online eaching quality evaluation | Quantitative | Multi-disciplinary | RQ1 |
| 33 | Jing, YH; Chen, XJ; Zhu, KK; Shen, SS; Wang, CL | The Implementation Path and Problems Encountered During Emergency Remote Teaching in Vocational Colleges: A Qualitative Study in China | 2023 | SAGE OPEN | 0 | Article | Web of Science | Implementation and challenges experienced by teachers during remote teaching | Qualitative | Multi-disciplinary | RQ1, RQ2 |

| Sl. No. | Authors | Title | Year | Source title | Cited by | Document Type | Source | Description | Design | Subject area | Addressing RQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | Zhang, T., Zhou, Q., Yang, C., Bai, X., Han, X., Cui, G., & Wang, Y. | Exemplars of Good Practice | 2023 | Handbook of Technical and Vocational Teacher Professional Development in the Digital Age | 2 | Book chapter | Scopus | Case studies | Case-study | General | RQ1 |
| 35 | Zhou Q.; Diao J.; Wang Y.; Chen M.; Yang C.; Li M.; Wang J.; Yi K.; Han X.; Cui G.; Zhang T. | Strategies for Developing TVET Teachers' Professional Competencies | 2023 | Springer Briefs in Education | 0 | Book chapter | Scopus | TVET teachers' professional development | Qualitative | General | RQ1 |
| 36 | Dai J. | Research on the digital cultivation form of "double-qualified" teachers team in higher vocational colleges and universities under the perspective of industry-teaching integration | 2024 | Applied Mathematics and Nonlinear Sciences | 0 | Article | Scopus | Teaching model | Quantitative | General | RQ3 |
| 37 | Shen J. | Development of Online and Offline Mixed Teaching Materials for Higher Vocational Education Under the Background of Internet | 2024 | International Journal of e-Collaboration | 0 | Article | Scopus | Blended teaching materials | Model developemnt | Accounting | RQ1 |
| 38 | Yang J. | Reform and Innovation of Dance Choreography Teaching Based on Virtual Environment Technology | 2024 | Applied Mathematics and Nonlinear Sciences | 0 | Article | Scopus | Virtual teaching | Experimental | Dance | RQ1 |
| 39 | Shi S. | Research on the Innovation Path of Music Education in Higher Vocational Colleges and Universities in the Context of the New Era | 2024 | Applied Mathematics and Nonlinear Sciences | 0 | Article | Scopus | Digital teaching using AI and multimedia | Mixed method | Music | RQ1 |
| 40 | Xu S.; Chen P.; Zhang G. | Exploring Informatizaon Instructional Core Competence of Higher Vocational College Teacher for Professional Development | 2024 | Journal of Educational and Social Research | 0 | Article | Scopus | Teachers' technology competeny | Literature based | General | RQ1 |
| 41 | Zhang Y.; Sun X.; Yu J. | Transformative Technologies in the Evaluation of a Vocational Education System | 2024 | Journal of Web Engineering | 0 | Article | Scopus | Teachers' professional development | Mixed method | Multi-disciplinary | RQ3 |
| 42 | Jiang L. | Factors influencing EFL teachers' implementation of SPOC-based blended learning in higher vocational colleges in China: A study based on grounded theory | 2024 | Interactive Learning Environments | 11 | Article | Scopus | Factors affecting teachers' implementation of blended technique | Qualitative | EFL | RQ1 |
| 43 | Zhang H.; Zhang Y.; Xu T.; Zhou Y. | Effects of VR instructional approaches and textual cues on performance, cognitive load, and learning experience | 2024 | Educational Technology Research and Development | 1 | Article | Scopus | The effects of VR instructional approaches and textual cues on learning. | Quantitative | Computer Application course | RQ1 |
| 44 | Yang X. | Analyzing the efficacy of Higher Vocational Online-Offline Blended Teaching using Koch's Model | 2024 | Applied Mathematics and Nonlinear Sciences | 0 | Article | Scopus | Analysis of the online and offline blended teaching effect of the school using evaluation model | Quantitative | General | RQ1 |


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Han, X., Zhou, Q., Shi, W., & Yang, S. (2020). Online learning in vocational education of China during COVID-19: Achievements, challenges, and future developments. *Journal of Educational Technology Development and Exchange*, *13*(2), 61–82. https://doi.org/10.18785/jetde.1302.06

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# SCOPING REVIEW ON THE PERSPECTIVE OF UNIVERSITY STUDENTS TOWARD EDUCATION FOR SUSTAINABLE DEVELOPMENT

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## ABSTRACT

Sustainable Development Goals (SDGs) agenda remains 6 years before it ends, and yet the achievement towards it still needs to be taken seriously, especially for countries who still face challenges in achieving SDGs. Education for Sustainable Development (ESD) has been seen as a way to help the achievement of SDGs. Therefore, the need to implement ESD in higher education institutions (HEIs) has become paramount. This scoping review explores students' perspectives toward ESD in HEIs, which addresses two main research questions: 1) What are the students' perspectives on the role of ESD in preparing them for sustainability-related challenges in their future careers and personal lives? 2)What are the students' perspectives on suitable approaches for implementing ESD in higher education institutions?. The scoping review analysed 47 studies published between 2020 and 2024. The search was done using databases such as Scopus, Emerald and Google Scholar. By employing thematic analysis, the data were analysed deductively based on two themes that were predetermined, namely the importance of ESD and approaches for implementing ESD. The first theme refers to the importance of ESD, which emphasises fostering competencies like problem-solving and collaboration, students' awareness of ESD and promoting a positive attitude and behaviour toward sustainability. The second theme highlights approaches such as curriculum integration, right pedagogies and providing training to educators as key approaches to effective implementation of ESD. Based on the findings, this scoping review presented several recommendations for future scholars, educators, and policymakers to consider implementing ESD.

**Keywords**: scoping review, university students, perspectives, education for sustainable development, sustainable development goals

## 1. Introduction

In 2015, the United Nations introduced the Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet, and ensure peace and prosperity by 2030. These goals are structured across three main pillars: environmental sustainability, social inclusion, and economic growth. With only five years remaining until the SDGs' deadline, significant challenges persist, particularly in regions such as Asia and other developing countries, where progress toward achieving these goals has been slow. According to the 2024 Sustainable Development Goals Report, European countries are progressing faster compared to Asian counterparts (Sachs et al., 2024). This discrepancy stresses the need for enhanced and targeted efforts to accelerate progress toward these global objectives.

Education for Sustainable Development (ESD) has been increasingly recognized as a critical driver for achieving the SDGs. ESD promotes not only the acquisition of knowledge and skills necessary to address sustainability challenges but also fosters the development of attitudes, behaviors, and competencies that empower individuals to contribute to sustainable development (Braßler & Sprenger, 2021). Furthermore, in SDG 4 which refers to quality education, Target 4.7, highlights ESD plays a critical role in ensuring that all learners acquire the competencies to promote sustainable development, including global citizenship, cultural diversity, and appreciation of environmental stewardship (United Nations, 2015). By integrating sustainability into education systems, particularly in higher education institutions (HEIs), ESD helps students address complex global issues such as climate change, social inequality, and economic instability (UNESCO, 2013).

HEIs play a pivotal role in preparing students to become change agents for sustainability (Reza, 2016) and serve as important platforms for instilling sustainability competencies. The competencies include systematic thinking, anticipatory thinking, critical thinking, normative thinking, strategic thinking, problem-solving, self-awareness and collaborative skills (UNESCO, 2017). In this context, universities worldwide are increasingly incorporating ESD into their curricula to equip graduates as future leaders in achieving the SDGs, recognizing its relevance across disciplines and enhancing strategic commitments to sustainability in education (Price et al., 2024). Studies showed that there are an increase of sustainability knowledge, attitude and behavior when ESD is being integrated. For instance, Collado et al. (2022) found that participation in ESD interventions enhanced students' pro-environmental knowledge, personal environmental norms, and pro-environmental behaviors. As the study provided evidence of the increased quality of graduates through the implementation of ESD, it further justified the need for its implementation. However, Thompson (2023) mentioned that the implementation of ESD across universities varies significantly, with disparities in curriculum integration, teaching methodologies, and institutional support. Syed-Abdullah et al. (2023) further emphasised that universities adopt different approaches to implementing ESD, reflecting varying levels of institutional commitment and strategy. Their study identified four key approaches used to implement ESD in HEIs namely the organizational adoption approach, the competitive approach, the continuity approach, and the transformative approach.

It is noteworthy that as reported by Titisari et al. (2020), the perspectives of students toward ESD, especially regarding its relevance, accessibility, and the challenges they face in engaging with it, remain underexplored. Students, as the primary recipients and users of educational curricula, play a crucial role in shaping and benefiting from ESD. Moreover, they are recognized as agents of change capable of addressing global challenges (United Nations,

2015). Thus, capturing their perspectives is vital for designing effective and relevant ESD initiatives in higher education.

This study seeks to bridge these gaps by exploring students' views, with a particular focus on their perceptions of ESD's relevance and its implementation in HEIs. Given the breadth of this topic and the need to capture diverse perspectives across contexts, a scoping review is appropriate to comprehensively map the existing literature and identify research gaps. A scoping review methodology was employed, guided by Arksey and O'Malley's (2005) framework. This approach was selected because it aligns closely with the objectives of this study, which aims to comprehensively map the existing literature on students' perspectives toward ESD in HEIs. Scoping reviews are particularly appropriate when exploring emerging areas of research where the body of literature is broad, heterogeneous, or underdeveloped (Anderson et al., 2008). This methodology was deemed important to map the breadth and depth of existing literature, identify key themes, and clarify conceptual understandings related to ESD in higher education.

Unlike systematic reviews, which focus narrowly on study quality and specific outcomes, scoping reviews are valuable for examining emerging, complex, or interdisciplinary topics where definitions, approaches, and findings may vary widely (Munn et al., 2018). Findings from a scoping review may highlight the range of strategies and practices used to implement ESD, uncover gaps in current research, and offer a foundation for developing relevant frameworks or instruments for further study. In doing so, a scoping review contributes to a more comprehensive understanding of how ESD is perceived and practiced, particularly from the student perspective, which is often underrepresented in policy and curriculum discussions.

A review of the existing literature reveals significant gaps that this scoping review aims to address. While there is a growing body of research on ESD, most studies rely heavily on quantitative approaches, such as surveys and it focus on measuring university students' knowledge, attitudes, awareness, and behaviours related to ESD and SDG. However, limited qualitative or mixed-methods research was adopted which could provide deeper insights into students' lived experiences with ESD. This over-reliance on quantitative methods emphasizes the need for more diverse methodological approaches to provide a comprehensive understanding of students' perspectives toward ESD. In the context of Malaysia, studies exploring students' perspectives on ESD are particularly scarce, and existing research also tends to adopt predominantly quantitative methodologies. This lack of qualitative engagement limits a nuanced understanding of students' wants, needs, and expectations regarding the importance of ESD in their education and future careers. Consequently, by doing a scoping review focused specifically on university students' perspectives toward ESD is necessary to map, synthesise, and evaluate the existing literature. Such a review will not only identify prevailing themes and methodological trends but also highlight research gaps and underexplored areas.

This scoping review analysed 47 studies published between 2020 and mid-2024, with a focus on understanding students' perspectives toward ESD and the barriers and facilitators of its successful implementation in higher education. To achieve this, the following research questions were formulated:

1. What are the students' perspectives on the role of ESD in preparing them for sustainability-related challenges in their future careers and personal lives?
2. What are the students' perspectives on suitable approaches for implementing ESD in higher education institutions?

Through this scoping review, the study aims to inform educators, policymakers, and future researchers by mapping current knowledge, highlighting effective practices, and identifying challenges that hinder the broader integration of ESD in higher education.

## 2. Methods

As mentioned in the introduction, this study aimed to conduct a scoping review due to its benefits in providing a comprehensive overview of existing literature, identifying key themes, and uncovering research gaps related to students' perspectives on ESD in HEIs. This method is often confused with a systematic literature review. It is important to note that the two methods may be similar in their methodological steps, but they serve different purposes. Systematic reviews focus narrowly on a well-defined research question and critically synthesize results. Scoping reviews provide an overview of the available evidence without excluding studies based on rigid methodological criteria (Munn et al., 2018). Furthermore, scoping reviews are valuable for identifying key concepts, gaps, and patterns, offering insights for future research and practice (Peters et al., 2015; Gutierrez-Bucheli et al., 2022). This broad, exploratory approach is essential to capture the varied ways ESD is perceived and implemented across different contexts, something a systematic review's narrower focus would not accommodate at this stage. Therefore, a scoping review was adopted in this study.

Through the scoping review, this study analyzed literature related to the university students' perspective on the importance of ESD and suitable approaches to implement it. Furthermore, the researcher identified that most articles in the literature focus on specific themes, such as assessing the effectiveness of pedagogical approaches or measuring students' awareness of sustainability. However, this fragmented approach highlights a significant gap where no comprehensive literature review has been proposed to synthesize these diverse perspectives into a unified framework. To address this gap, this study categorizes students' perspectives based on multiple dimensions frequently explored in existing research, including knowledge, attitudes, competencies, perceived relevance to career and personal life, and preferences for implementation strategies. This multidimensional approach allows for the exploration of various aspects of the topic. In this case, the perspective of university students provides a broad understanding, as their views can encompass a wide range of factors related to ESD. For example, students' perspectives can reveal both the importance of implementing ESD (such as its relevance to their personal and professional growth) and the approaches that might be effective in integrating ESD into higher education institutions.

If the study were to focus only on specific keywords, such as "importance for implementing ESD," it would limit the scope of the findings to that particular area, potentially missing out on other crucial aspects such as the practical strategies, challenges, or student engagement with ESD. The multidimensional approach provided by the scoping review ensures that the research captures a comprehensive view of ESD from students' perspectives, which can include both the significance and the methods for its implementation, thus offering a more holistic understanding.

Additionally, these dimensions informed the development of the search strategy, ensuring that the selected search terms captured both general perspectives on ESD and specific constructs related to its implementation and impact. By consolidating findings across these dimensions, this review aims to provide a more holistic understanding to inform both research design and educational practice.

The scoping review is a useful method that quickly identifies research trends and results related to the research topic. It is also known for its ability to discover usable basic resources and core concepts of corresponding areas by including various types of research (Arksey & O'Malley, 2005). This scoping review process followed the framework proposed by Arksey and O'Malley (2005). According to Arksey and O'Malley (2005), there are 5 stages in building a scoping review: 1) Identify research questions; 2) Identify relevant studies; 3) Study selection; 4) Charting the data; 5) Collecting, summarizing and reporting the results. In the following section, the details of each of these stages are presented.

### 2.1 Identify the research questions

The formulation of research questions for this study was based on the PICO framework. Richardson originally developed the PICO framework et al. (1995) to structure clinical research questions but has since proven adaptable across various fields, including social sciences. Its ability to clarify key elements of research questions, such as population, intervention, and outcomes, makes it suitable for evidence-based reviews in non-clinical contexts. PICO is based on three main concepts, namely Population or Problem, Interest, and Context. Based on these concepts, the authors have included three main aspects in the review, namely university students (Population), perspectives (Interest), and education for sustainable development in higher education institutions' curriculum (context).

### 2.2 Identify relevant studies

The scoping review analyzed research papers that discussed higher education students' perspectives, attitudes, or engagement with education for sustainable development (ESD). The research papers were limited to those published from 2020 to 2024. Although the SDGs were introduced in late 2015 and early 2016, the years following 2020 have seen a significant acceleration in efforts to integrate sustainability into higher education, spurred by the UN's Decade of Action and increasing global awareness of sustainability challenges. By focusing on articles published between 2020 and 2024, this review captures the most recent advancements, practices, and perspectives on ESD. This period also reflects a critical phase in the implementation of SDG-aligned initiatives in higher education, ensuring that the findings are both contemporary and relevant to current educational and policy contexts. Older studies, while valuable, may not fully address the rapidly evolving discourse and practices in sustainability education during this time frame.

Based on the research questions, three main keywords were identified: university students, perspectives, and education for sustainable development. To expand on these keywords, the authors searched for synonyms, related terms, and variations using an online thesaurus (thesaurus.com). As a result, alternative keywords for 'university students' included 'higher education students' and 'college students.' For 'perspectives,' related terms included 'opinions,' 'views,' 'attitudes,' and 'perceptions.' Lastly, for 'education for sustainable development,' variations such as 'education for sustainability' and 'sustainability education' were also

included. The combinations of these keywords were processed using search functions in two databases: Scopus and Emerald (see Table 1).

The choice of keywords was directly informed by the research questions guiding this study. Both research questions explore university students' perspectives on ESD, specifically their views on ESD's role in preparing them for future sustainability-related challenges and on suitable approaches for implementing ESD in higher education. To address these questions, 'university students' was chosen as a primary keyword to ensure the focus remains on this specific population. 'Perspectives' was selected to capture the subjective viewpoints and experiences of students, encompassing a broad range of aspects, such as their prior knowledge, perceived importance of ESD, challenges they identify, and their recommendations for effective implementation. While the research question seeks to explore the roles and challenges of ESD, the study adopts a focused approach by prioritizing these three keywords. This approach is based on the assumption that examining students' perspectives will inherently reveal insights into both the perceived roles and challenges of ESD in higher education. This breadth aligns with the multidimensional research questions. Together, these keywords ensure that the search strategy is directly aligned with the study's objectives, facilitating the identification of relevant literature that addresses both the population (university students) and the thematic focus (perspectives on ESD).

**Table 1: Search string used in selected database**

| Database | String |
|---|---|
| Scopus | TITLE-ABS-KEY ("university students" OR "higher education students" OR "college students") AND ("perspectives" OR "opinions" OR "views" OR "attitudes" OR "perceptions") AND ("education for sustainable development" OR "education for sustainability" OR "sustainability education") |
| Emerald | TITLE-ABS-KEY ("university students" OR "higher education students" OR "college students") AND ("perspectives" OR "opinions" OR "views" OR "attitudes" OR "perceptions") AND ("education for sustainable development" OR "education for sustainability" OR "sustainability education") |

The scoping review included articles indexed in Scopus and Emerald databases, which are widely recognized for their comprehensive coverage of peer-reviewed literature across diverse disciplines, including sustainability and education. Scopus is one of the largest abstract and citation databases of peer-reviewed research literature, offering extensive coverage of relevant articles. It also offers extensive interdisciplinary coverage and high-quality indexing standards, making it ideal for identifying impactful research across fields, including education and sustainability (Falagas et al., 2008; Burnham, 2006). Emerald specializes in management, education, and social sciences, providing focused access to studies on sustainability and educational practices (Emerald Group Publishing, 2021). To expand this scoping review, the

researcher also used manual searching by using Google Scholar as a supporting database. Given these considerations, the selected databases were deemed sufficient to achieve the research objectives. For this scoping review, the researcher did not include WoS due to restricted access. However, future studies could consider integrating additional databases, such as Web of Science, to further enrich the review.

### 2.3 Study selection

Study selection was the third procedure carried out, where articles were either included or excluded (with the assistance of the database or manual screened by the authors) from the study based on a specific set of criteria (Table 2).

**Table 2: The inclusion and exclusion criteria**

| Inclusion | Exclusion |
|---|---|
| Studies focusing on university students as the primary population. | Studies not focusing on university students as the primary population. |
| Articles published in English. | Articles published in non-English. |
| Articles which have open access | Articles which do not have open access |
| Articles published ≥2020 | Articles published <2020 |
| Articles discussing university students' perspectives, attitudes, or engagement with education for sustainable development (ESD). | Articles that do not address education for sustainable development or related concepts |
| Research addressing themes related to sustainability, environmental education, or sustainable development practices within higher education. | |

The following Figure 1 presents the search results from Scopus and Emerald, an international database, using the strategies outlined in Table 1. Searches conducted across Scopus and Emerald databases initially yielded 920 papers. Additionally, 22 articles were added from Google Scholar through manual searching and resulting in 922 papers. Then, a total of 617 articles were excluded from the review during this stage since they were not in line with the inclusion requirement. This resulted in 305 remaining articles for evaluation in the subsequent stage. Duplicate articles were then removed based on title and author, reducing the count by 10. The authors manually checked the remaining papers to identify (either by reading the title, abstract or the entire paper) whether the papers matched the established inclusion criteria. 248 articles were excluded during this stage since they did not focus on the perspectives of university students toward SDG/ESD. Ultimately, 47 articles were finalised for inclusion in the study.

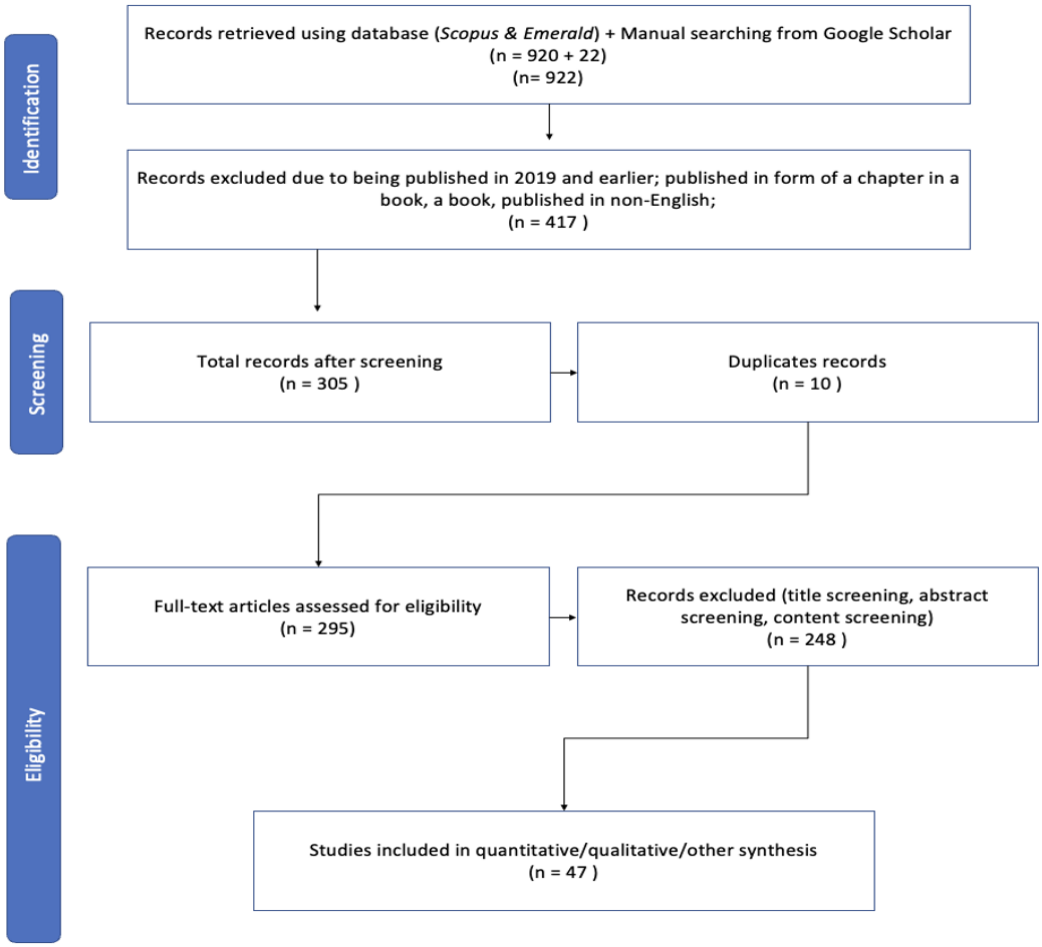


**Figure 1: Flow Diagram of Included Studies**

## 2.4 Data Extraction

To extract and organize the data, the author also recorded information of the review, so that the outcome is contextualized and more understandable to the reader. Below are the information included:

- author(s), year of publication, study location
- Intervention type/duration
- Study population
- Aim of the study
- Method
- Results

## 2.5 Collecting, summarizing and reporting the results

In conducting this scoping review, it is essential to include a diverse range of data to thoroughly address the study topic. Equally important is the way the included data are represented. According to Arksey & O'Malley (2005), it is also important to consider how the

data is shown. To comprehensively explore various research perspectives on students' views regarding the importance of ESD and effective approaches for its implementation, this review did not conduct quality evaluations of the included studies. According to Peter et al. (2015), the primary purpose of a scoping study is to map existing evidence rather than assess its quality. Consequently, scoping reviews aim to identify research gaps, summarize key concepts, and understand the range of available research rather than determine the robustness or generalizability of individual studies.

Using the collected data, this study examined the publication dates, study methods, countries of origin, and key findings of the included research. Additionally, information sources and specific information needs were summarized. As this study involves a review of existing research articles, it did not require ethical approval or individual consent (Jo et al., 2019).

A total of 47 articles were thoroughly reviewed and coded to address the research questions. Since a scoping review is used to systematically map existing literature and identify key themes, thematic analysis was employed as a complementary approach to interpret qualitative insights from the reviewed studies. This ensures that the findings go beyond a descriptive summary, allowing for a deeper exploration of patterns, recurring concepts, and emerging perspectives related to university students' views on ESD implementation. The integration of these approaches strengthens the paper's academic rigor by ensuring that findings are systematically categorized while capturing nuanced qualitative insights that might not be evident in purely quantitative syntheses. During open coding, initial codes were generated by reviewing the text of each article, and identifying recurring concepts, key phrases, and patterns related to the university students' perspectives on education for sustainable development (ESD). This phase was exploratory, allowing for the broad collection of data relevant to both research questions. For example, several articles examined how ESD interventions increased students' sustainability awareness (*e.g., "A factor analysis shows small but statistically different positive differences, which indicate that the revised curriculum has been successful in raising student awareness and achieving behavior " – Hay & Eagle, 2020*). This was initially coded under "raise awareness".

Following open coding, the identified codes were categorized into sub-themes by grouping similar codes that shared common characteristics or related to specific aspects of ESD. These sub-themes refined the analysis and provided a more nuanced understanding of various dimensions of students' perspectives, such as their views on ESD's role in preparing for future challenges or their preferred approaches to ESD implementation. For instance, related codes were grouped into sub-themes. In this case, the codes "raise awareness" and "improve awareness" were categorized under the sub-theme "Promoting Awareness", which encompasses students' recognition of sustainability issues and their perceived importance of ESD.

Finally, the sub-themes were organized into overarching themes, representing broader patterns that emerged across the articles. These overarching themes offer insight into the most significant findings related to the students' perspectives on ESD and its integration into higher education. For example, in the theme development phase, the sub-theme "Promoting Awareness" contributed to the broader theme of "The Importance of Implementing ESD." This overarching theme captures the essential role of ESD in shaping students' knowledge and attitudes toward sustainability.

The process followed the principles of thematic analysis as outlined by Braun and Clarke (2006), ensuring the analysis was both rigorous and aligned with the research objectives. The resulting themes are presented in Figure 5, Figure 6, Figure 7 and Figure 8, which provide a comprehensive summary of the key findings from the reviewed literature.

## 3. Results

### 3.1 Background of the reviewed literature

As mentioned earlier, 47 articles were analyzed in this scoping review. These articles are categorized by country, publication year, and methodology as in Table 3. Figure 2, 3 and 4 summaries of each category.

**Table 3: Summary background of selected studies**

| Author(s) | Country | Year | Methodology |
|---|---|---|---|
| Albattah and Bande | Saudi Arabia | 2023 | Quantitative |
| Alrasheed and Hamdan | Saudi Arabia | 2023 | Qualitative |
| Balakrishnan et al. | Malaysia | 2021 | Quantitative |
| Collado et al. | Spain | 2022 | Quantitative |
| France et al. | United States | 2022 | Quantitative |
| Gomez and Garcia | Spain | 2023 | Mixed Methods |
| Hamón et al. | Spain | 2020 | Quantitative |
| Hay and Eagle | Australia | 2020 | Quantitative |
| Hyytinen et al. | Finland | 2023 | Quantitative |
| Ibrahim | Saudi Arabia | 2021 | Quantitative |
| Karin et al. | Sweden | 2022 | Quantitative |
| Liu et al. | Japan | 2022 | Mixed Methods |
| Llach and Bastida | Spain | 2023 | Quantitative |
| Maiorescu et al. | Romania | 2020 | Quantitative |
| Ngo and Chase | United States | 2020 | Quantitative |
| Sierra and Collado | Spain | 2021 | Quantitative |
| Suprapto and Hidayatullah | Indonesia | 2023 | Mixed Methods |
| Syed-Azhar et al. | Malaysia | 2022 | Quantitative |
| Thomas et al. | Japan | 2023 | Mixed Methods |
| Trechsel et al. | Switzerland | 2023 | Qualitative |
| Turner et al. | India | 2022 | Quantitative |
| Urbaniak et al. | United States | 2024 | Quantitative |
| Wang et al. | Netherlands | 2022 | Quantitative |
| Xing and Ironsi | China | 2024 | Quantitative |
| Zwolińska et al. | Poland | 2022 | Quantitative |
| Kalsoom et al. | Pakistan | 2020 | Quantitative |
| Syed-Azhar et al. | Malaysia | 2022 | Quantitative |
| Ribeiro et al. | Portugal | 2023 | Qualitative |

| | | | |
|---|---|---|---|
| Wang et al. | China | 2020 | Quantitative |
| Leiva-Brondo et al. | Spain | 2022 | Quantitative |
| Abowardah et al. | Saudi Arabia | 2024 | Quantitative |
| Fourati-Jamoussi et al. | France | 2021 | Quantitative |
| García-González et al. | Spain | 2020 | Qualitative |
| Al-Nuaimi & Al-Ghamdi | Qatar | 2022 | Quantitative |
| Nousheen et al. | Pakistan | 2020 | Quantitative |
| Saleem | Sweden | 2022 | Qualitative |
| Zhong et al. | China | 2024 | Quantitative |
| Sanjeez et al. | India | 2024 | Quantitative |
| Afroz & Ilham | Malaysia | 2020 | Quantitative |
| Saloovara et al. | Finland | 2021 | Qualitative |
| Smaniotto et al. | Italy | 2020 | Quantitative |
| Saqib et al. | Pakistan | 2020 | Quantitative |
| Aginako and Guraya | Spain | 2021 | Quantitative |
| De Moraes Prata Gaspar et al. | Spain | 2023 | Mixed Methods |
| Li et al. | China | 2024 | Quantitative |
| Yamano et al. | Japan | 2024 | Quantitative |
| Kızıloğlu and Karaboğa | Turkey | 2024 | Qualitative |

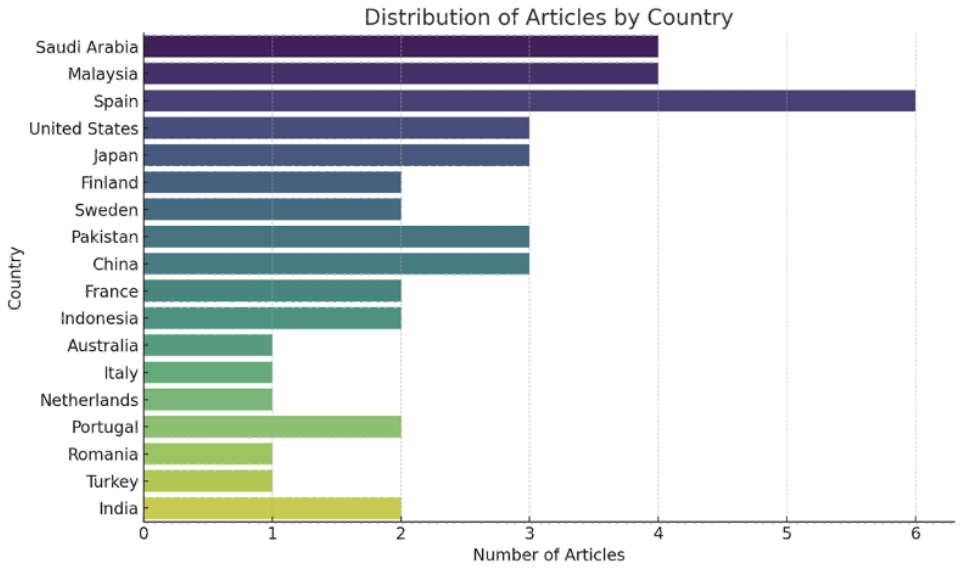


**Figure 2: Distribution of Articles by Country from 2020-2024**

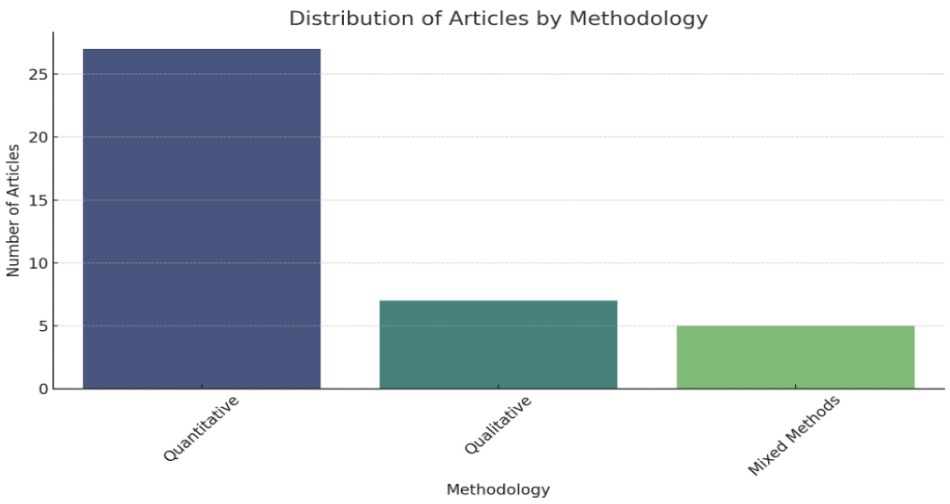


**Figure 3: Distribution of Studies by Research Method from 2020-2024**

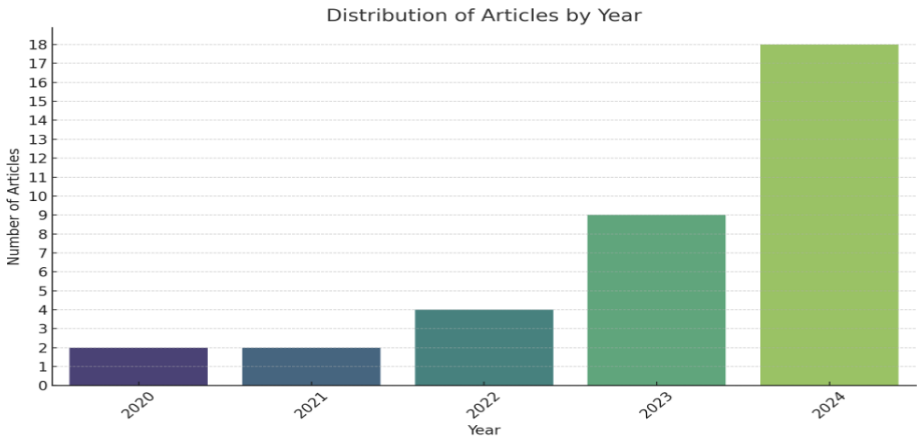


**Figure 4: Distribution of Studies by Research Method from 2020-2024**

The distribution of articles from 2020 to 2024 as in Figure 4 may be influenced by several factors, including national policies, support, awareness, prioritization, and current demand. As shown in Figure 2, Spain has the highest number of publications related to university students' perspectives on Education for Sustainable Development (ESD) in higher education, from 2020 to 2024. This is likely driven by the implementation of the Education and Sustainability in Higher Education (EDINSOST) framework, launched in 2016. Aligned with the European Union's sustainability goals, this initiative promotes the integration of sustainability into curricula across Spanish higher education institutions (HEIs). As part of Spain's commitment to sustainability, EDINSOST has significantly contributed to the rise in related research, including studies on student perspectives and engagement with sustainable development topics. The framework provides strategic guidance for universities to adopt sustainability practices, addressing not only environmental but also societal and economic dimensions, while encouraging the creation of sustainability-focused academic programs and research initiatives. Thus, the increase in publications from Spain between 2020-2024 can be

attributed to EDINSOST, which has acted as a mechanism for embedding sustainability in education and fostering academic research in the field (UNESCO, 2016; Sánchez-Carracedo et al., 2021).

Saudi Arabia and Malaysia have the second-highest distribution of articles. In Saudi Arabia, the increase in publications on ESD in higher education is linked to the Vision 2030 initiative, announced in 2016, which emphasized sustainability and innovation in all sectors, including education (Essa & Harvey, 2022). This has prompted Saudi universities, such as King Saud University and King Abdulaziz University, to introduce sustainability programs and research centres aligned with the Sustainable Development Goals (SDGs). Recent national educational reforms focusing on sustainability have accelerated the adoption of ESD practices in Saudi higher education, leading to a surge in research, particularly on student engagement and awareness of sustainability topics (Hassan et al., 2019). In Malaysia, while the Malaysia Education Blueprint does not explicitly mention ESD, it incorporates key elements aligned with ESD principles, such as holistic education, global citizenship, and higher-order thinking skills. Furthermore, government research grants that prioritize sustainability-related topics have encouraged more studies on ESD. Several universities, including Universiti Islam Antarabangsa Malaysia (UIAM) and Universiti Sains Malaysia (USM), have actively integrated ESD into their institutions, further contributing to the growing body of research on sustainability education in Malaysia.

Despite the lower number of articles from other countries such as Japan, United States, Australia, Finland, China and many more regarding university students' perspectives on ESD, this does not imply that these countries have not integrated ESD into their educational systems. Japan was one of the first nations to embed ESD into national policy, with the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) supporting the integration of sustainability into higher education curricula (Nomura & Abe, 2021). The lower distribution of articles may be due to factors such as the limited scope of studies and year, which often focus specifically on student perspectives on the importance and implementation of ESD from 2020 to mid 2024. Additionally, language barriers and the accessibility of journals especially those published in English may restrict the visibility of research from non-English-speaking countries (Bahji et al., 2023).

### 3.2 Students' Perspective Towards ESD

This study aimed to investigate students' perspectives toward ESD based on two themes: the importance of ESD and approaches to implementing ESD. Table 4 shows the coding process that took place during the data analysis.

**Table 4: Coding process**

| References | Themes | Sub-themes | Keyword |
|---|---|---|---|
| Alrasheed and Alghamdi (2022); Hyytinen et al. (2023); Karin et al. (2022); Trechsel et al. (2023); Llach and Bastida (2023); Wang et al. (2022). | Importance of ESD | Fostering competencies | Acquire both soft & technical skills<br>Foster communication skills<br>Enable see things from different perspectives<br>Boost confidence<br>Promoted students' autonomy<br>Improved planning skills, time management, and accountability<br>Develop interpersonal competence, self- regulation, critical thinking<br>Enhance students' understanding<br>Frame students' key competencies, interpersonal |

| | | | |
|---|---|---|---|
| | | | Develop soft skills<br>Develop communication & management skills<br>Develop collaboration and network skills<br>Developed mental maps<br>Learn to think more holistically<br>Manage and control emotions<br>Self-awareness<br>Self-efficacy<br>Reflection<br>System thinking<br>Normative<br>Anticipatory<br>Self-awareness |
| Albattah and Bande (2023); Turner et al. (2022); France et al. (2022); Hay and Eagle (2020); Gomez and Garcia (2023); Syed-Azhar et al. (2023). | | Awareness | Promote environmental awareness<br>Raise awareness<br>Improve awareness |
| Urbaniak et al. (2024); Albattah and Bande (2023); Ngo and Chase (2020); Collado et al. (2022); Balakrishnan et al. (2021); Hamón et al. (2020). | | Promoting positive attitude and behavior | Help change attitude for better<br>Interested to promote sustainability<br>Increase students' goal to address sustainability issues<br>Enhance students' pro-environment behavior<br>Increase sustainability behavior<br>Engage in sustainability activities |
| Ngo and Chase (2020); Thomas et al. (2023); Liu et al. (2022); Zwolińska (2022); Turner et al. (2022); Balakrishnan et al. (2021); Ibrahim (2021). | Approaches for Implementing ESD | Curriculum | Formal teaching<br>Incorporate sustainability element into education<br>ESD intervention<br>Interdisciplinary teaching and learning<br>SDG project<br>Environmental class curriculum |
| Suprapto and Hidaayatullaah (2023); Alrasheed and Hamdan (2023); Sierra and Collado (2021);Karin et al. (2022); Llach and Bastida (2023); Thomas et al. (2023); Turner et al. (2022); Balakrishnan et al. (2021); Hamón et al. (2020). | | Pedagogy | Project based learning<br>Active learning<br>Interdisciplinary teaching and learning<br>Field learning<br>Work integrated learning<br>Problem based learning<br>Learner & action centred<br>Interactive |
| Thomas et al. (2023);Gomez and Garcia (2023). | | Training | Provide training to educators<br>Need for teacher training |

As shown in Table 4, there are two themes emerged from the data analysis, namely importance of ESD, and approaches for implementing ESD. Each of these themes can be further divided into several sub-themes. The themes and sub-themes were named based on the keywords identified from the reviewed literature. Table 5 and Figure 5 summarized these findings for this scoping review. The table also includes brief descriptions of the sub-themes.

**Table 5: Summarized themes and sub-themes**

| Themes | Sub-themes | Description |
|---|---|---|
| Importance of ESD | Fostering competencies | Developing necessary skills and competencies that enable students to contribute effectively to sustainable development. |
| | Awareness | Enhancing students' understanding of global and local sustainability issues. |
| | Promoting Positive Attitudes and Behaviors | Encouraging attitudes that support sustainable development and proactive engagement with sustainability initiatives. |
| Approaches for Implementing ESD | Curriculum | Embedding SDG concepts into the curriculum enables students to contextualize sustainability within their academic disciplines. |
| | Pedagogy | Utilizing teaching strategies that promote hands-on, real-world applications of sustainability concepts. |
| | Training | Ensuring educators are trained in sustainability education, equipping them to teach and guide students effectively. |

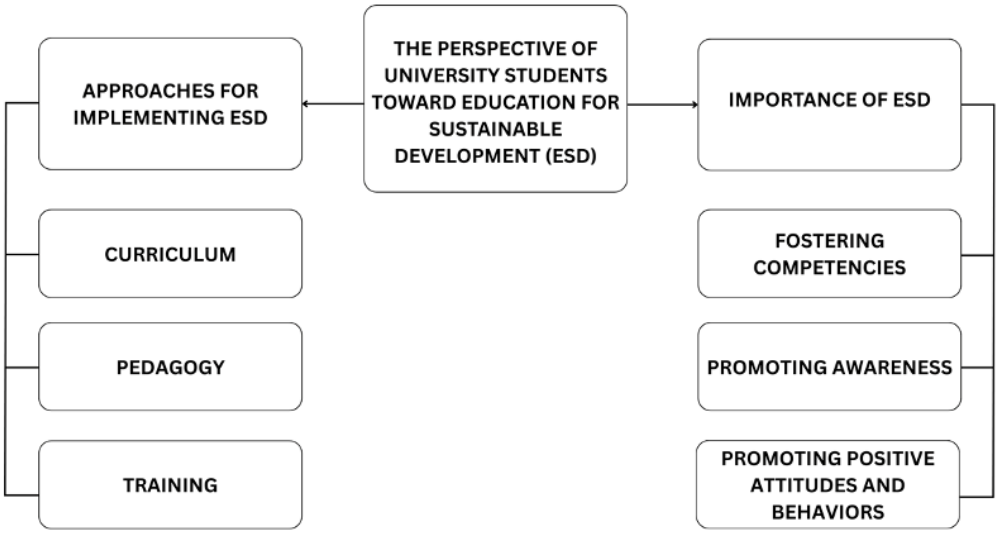


**Figure 5: Summary of the findings**

The findings for each of the themes are discussed in the following section.

## 4. Discussion

This part will further discuss the findings presented in the previous section. As presented in Figure 5 above, this scoping review identifies two main themes to answer the research questions namely 1) Importance of ESD and 2) Approaches for Implementing ESD.

### 4.1 Importance of ESD

The scoping review identified three importance of ESD from the perspective of university students.

#### 4.1.1 Fostering Competencies

ESD is considered to have the potential to foster students' competencies, specifically sustainable competencies, which are crucial for contributing to sustainable development. Various competencies were identified in each article, according to their distinct references. Despite some variation, these competencies generally align with UNESCO's (2017) eight sustainability competencies: systems thinking, anticipatory thinking, normative thinking,

strategic thinking, collaboration, critical thinking, self-awareness, and integrated problem-solving. Each competency fulfils specific roles, reflecting students' nuanced views on ESD.

For example, systems thinking involves recognizing and analyzing complex relationships across domains and scales. This skill allows students to view sustainability challenges holistically, an essential attribute that Karin et al. (2022) noted as vital for understanding the global-local impact on systems. Similarly, Llach and Baltida (2023) highlighted that students who perceived systems thinking competencies approached problems through the three domains of sustainability which consist of society, environment, and economy by considering their interconnections at both local and global levels. This comparison reveals a shared emphasis on broad, interconnected thinking but also suggests subtle differences in how systems thinking is applied, hinting at diverse student interpretations of ESD's role in fostering these competencies.

Wiek et al. (2011) define anticipatory competency as the ability to envision and assess multiple future scenarios related to sustainability. This skill encourages students to understand sustainability as a long-term, intergenerational issue, highlighting the importance of forward-thinking in sustainable development (Karin et al., 2022). By fostering this competency, ESD equips students not only with the ability to project future impacts but also with a mindset that challenges short-term, and sustainable practices. Moreover, anticipatory competency prompts students to critically reflect on their own behaviors and the broader implications of their actions. As Llach & Baltida (2023) suggest, this competency drives students to reassess their daily choices and take proactive steps toward more sustainable lifestyles. This shift toward personal accountability suggests that anticipatory competency supports transformative learning, where students evolve from awareness to action-oriented change.

Normative competency, as defined by UNESCO (2017), is essential for fostering a sustainability mindset, requiring reflection on the values that guide actions and the negotiation of sustainability principles. Karin et al. (2022) found that students rated themselves highly in this competency, particularly in relation to ecological values. Similarly, Llach and Bastida (2023) reported that students believed they addressed normative competency by identifying values and beliefs tied to complex sustainability issues. However, such self-reported assessments may not accurately reflect students' depth of understanding or practical application of these principles. Comparing these perceptions with empirical assessments of normative competency in real-world scenarios could reveal whether this competency is truly developed or merely recognized as important by students, highlighting potential gaps between self-perception and practical skill.

Strategic competency, as defined by Karin et al. (2022) and Wiek et al. (2011), encompasses the ability to identify and address barriers to sustainability and to collaboratively develop and implement effective solutions. This competency is critical for students to collectively design and implement interventions, transitions, and transformative governance strategies that support sustainable change (Wiek et al., 2011).

Additionally, some studies do not specify the exact sustainability competencies they address, instead using broad terms such as interpersonal skills, communication skills, research skills, or overarching concepts like "learning to care," "learning to be," and "learning to transform," along with creative thinking, confidence, autonomy, networking processes, seeing things from different perspectives, values thinking, good communication, developing soft skills, fostering mindset and action-related competencies, and innovative strategies (Al Rasheed & Alghamdi,

2023; Hyytinen et al., 2023; Trechsel et al., 2023; Wang et al., 2022). However, these terms can still be connected to UNESCO's eight sustainability competencies (2017).

For instance, "interpersonal skills" and "communication skills" directly correspond to collaborative competency, which emphasizes effective communication and cooperation across diverse groups. As Karin et al. (2022) explained, interpersonal competency involves the ability to actively engage across cultural boundaries and integrate diverse perspectives. Similarly, "research skills" can be linked to systems thinking and critical thinking competencies, as conducting thorough research requires an understanding of complex systems and the ability to critically analyze information.

The terms "creative thinking" and "innovative strategies" closely align with strategic competency, which involves developing and implementing transformative solutions. "Confidence" and "autonomy" can be tied to self-awareness competency, reflecting an individual's capacity for independent action and self-reflection in sustainability contexts.

Furthermore, "networking processes" and "good communication" relate to collaborative competency, highlighting the importance of building relationships and sharing information for collective action. "Seeing things from different perspectives" directly relates to critical thinking competency, encouraging the questioning of assumptions and engagement with diverse viewpoints.

"Values thinking" is linked to normative competency, which emphasizes ethical reflection and the importance of guiding decisions through sustainable principles. The development of "soft skills" generally connects to both collaborative and self-awareness competencies, as these skills are essential for effective interaction with others and understanding one's personal strengths and areas for growth.

Finally, concepts such as "fostering mindset" and "action-related competencies" resonate with anticipatory competency and integrated problem-solving competency, both of which involve envisioning future scenarios and taking effective action to address sustainability challenges. By connecting these broad terms to specific competencies, the research offers a comprehensive framework for integrating sustainability education and fostering the competencies necessary for transformative change.

### 4.1.2 Promoting Awareness

Research consistently supports the idea that ESD plays a critical role in raising students' awareness of sustainability. Albattah and Bande (2023), Gomez Gomez and Garcia (2023), Fourati-Jamoussi et al. (2021) and García-González et al. (2020) found that students who took sustainability-focused courses demonstrated a significantly greater understanding of key sustainability issues. This suggests that integrating ESD into the curriculum deepens students' awareness and provides opportunities for meaningful engagement with environmental and social challenges.

Similarly, France et al. (2022) found that students exposed to sustainability content in engineering courses felt an enhanced sense of agency, particularly regarding improving their quality of life and preserving the environment. The study highlighted that ESD not only raises awareness but also fosters a sense of personal responsibility. Students reported gaining knowledge and adopting more sustainable behaviors, indicating that ESD promotes active involvement rather than passive consumption of information. Kalsoom et al. (2020) show that

many students have deep concerns about ESD and thought that it can change the environment. Turner et al. (2022) further supported these findings by demonstrating that integrating ESD into higher education institutions (HEIs) significantly enhanced students' sustainability knowledge, showing its broad applicability across disciplines.

However, while knowledge increases, these studies highlight that a shift toward sustainable actions is not automatic. Pedagogical strategies must be carefully designed to foster such changes. This shows the idea that awareness alone is insufficient; behavior change requires thoughtful curriculum design that goes beyond merely delivering information.

### 4.1.3 Promoting Positive Attitude and Behavior

The scoping review also revealed that exposure to sustainability initiatives plays a key role in shaping students' attitudes toward sustainability. Balakrishnan et al. (2021) emphasized that integrating ESD into courses helped facilitate the development of positive attitudes and perceptions toward sustainability. Urbaniak et al. (2024) found that STEM students who participated in sustainability-related initiatives reported stronger commitments to sustainable behaviors, attitudes, and knowledge.

This finding was echoed by Ngo and Chase (2020), who discovered that students involved in sustainability-focused projects gained a deeper understanding of the practical challenges associated with sustainability and were more likely to adopt pro-environmental behaviors. Additionally, Collado et al. (2022) demonstrated that participation in ESD interventions enhanced students' pro-environmental knowledge, personal environmental norms, and pro-environmental behaviors, with the positive effects persisting even one year after the program's conclusion. This shows that the students can contribute to a positive attitude and behavior when they are exposed to sustainability initiatives. Zhong et al. (2024) supported this by proving that students' sustainability cognition plays a mediating role and has a positive effect on enhancing sustainability behaviors through education.

Furthermore, Hamón et al. (2020) found that sustainability practices implemented by universities fostered consistent correlations between attitudes and behaviors across the three dimensions of sustainability. The engagement not only reinforced theoretical knowledge but also translated into a shift in attitudes as students realized their individual actions could contribute to larger sustainability goals.

However, a study by Al-Nuami and Al-Ghamdi (2022) reported even though students can grasp sustainability-related knowledge, but value gradually decreases in attitudes and behaviors. Sanjeev et al. (2024) explained the impact of knowledge on behavior is direct and partially mediated through the attitudinal pathway which indicates central and peripheral routes of sustainability-related information processing and attitude formation. These findings suggest that while students acquire sustainability-related knowledge, its impact on behavior is not always straightforward, as attitudes play a mediating role in shaping sustainability-oriented actions.

## 4.2 Approaches in Implementing ESD

### 4.2.1 Curriculum

The second theme identified relates to approaches for implementing ESD. Many studies prove the value of embedding ESD within curricula to equip students with the knowledge and skills

necessary for addressing sustainability challenges. For instance, a study by Syed-Azhar et al. (2020) shows that students agree that integrating sustainability into courses has improved their understanding of sustainability. Furthermore, Jones et al. (2023) highlighted that the inclusion of ESD within course curricula encouraged students to become more committed to achieving the goals by 2030. This finding aligns with the broader objective of ESD, which aims to develop active and informed citizens capable of contributing to sustainable development. Similarly, Ngo and Chase (2020) demonstrated that a project-based sustainability course positively influenced students' perceptions of sustainable practices and social change. The study highlighted the potential of multidisciplinary learning to enhance student motivation, foster engagement in sustainability-focused activities, and strengthen social interactions. Liu et al. (2022) further supported these findings by illustrating the benefits of incorporating interdisciplinary approaches to sustainability within non-environmental courses. This approach fostered collaboration among students and instructors from diverse academic backgrounds, broadening students' perspectives and enhancing their ability to integrate knowledge and communicate across different fields. Such interdisciplinary exposure plays a crucial role in preparing students to address complex sustainability challenges by developing skills in cross-disciplinary collaboration and adaptability qualities that are increasingly essential for fostering innovative solutions to sustainability issues. A study also highlights there is a need to promote the concept of sustainability in all its complexity and multidimensionality.

### 4.2.2 Pedagogy

While many studies advocate for integrating ESD within curricula, effective implementation requires more than mere curriculum revision. The literature highlights the need for appropriate pedagogical approaches to deliver sustainability content and ensure impactful student learning experiences. Turner et al. (2022) demonstrated a positive association between sustainability learning outcomes and the use of active, student-centred teaching approaches. Similarly, Alrasheed and Hamdan (2023) encouraged adopting student-centred learning, particularly through Problem-Based Learning (PBL). Their study found that PBL fosters a variety of skills, including confidence, autonomy, critical and creative thinking, long-term retention, communication, networking, and research skills. It also enabled students to approach problems from diverse perspectives. Llach and Bastida (2023) further supported these findings by showing that PBL scenarios effectively addressed multiple SDGs and fostering sustainability competencies. Students in their study highlighted key elements such as emotional involvement, self-reflection, freedom to approach problems, and the empowering role of tutors as essential for developing sustainability competencies. Additionally, Karin et al. (2022) demonstrated that Work-Integrated Learning (WIL) projects, which provide real-life experiences, significantly enhance students' understanding and interpersonal skills. This approach aligns to prepare students for real-world sustainability challenges. Xing and Ironsi (2024) also revealed that the action competence teaching model was effective in equipping students with not only knowledge about sustainability issues but also the confidence and willingness to act. Ribeiro et al. (2023) show the student's view on Service Learning (SL) experience was particularly helpful in promoting SDGs awareness in the recipients and predisposing them to change attitudes and behaviors.

Suprapto and Hidayatuallah (2023) argue that teaching methods must evolve alongside technological advancements, highlighting the critical need for ESD to remain adaptable to stay relevant and impactful. This perspective reveals the importance of integrating new technologies into ESD frameworks to enhance student engagement and learning outcomes.

Sierra and Collado (2021) found that active learning through games and simulations not only boosted student engagement but also increased awareness of sustainability issues. The positive student responses in this study show the potential of experiential learning to deepen understanding of sustainability principles more effectively than traditional methods. These findings collectively suggest that ESD benefits most from interactive, technology-enhanced pedagogies that mirror real-world sustainability challenges. Such approaches foster both student engagement and a practical understanding of sustainable practices. This alignment between pedagogy and real-world issues is essential for cultivating a lasting commitment to sustainability among students. Wang et al. (2022) further support this by demonstrating that the effectiveness of universal, broadly applicable pedagogies positively correlates with the development of students' sustainability mindsets, as well as their capacity for sustainability-related action and communication.

While these studies support ESD integration, effective implementation often requires a mix of formal and informal learning experiences. Turner et al. (2022) discovered that students reported learning the most about sustainability from the "hidden" or informal curriculum rather than formal classes, suggesting that incidental learning plays a crucial role in shaping student attitudes. This insight highlights a potential gap in current approaches, where formal education alone may lack the impact of experiential learning, underscoring the need for diverse pedagogies that balance structured content with informal learning spaces.

Moreover, Ibrahim (2021) found that students preferred integrating sustainability topics into existing courses to avoid an additional study load while learning how to incorporate sustainability into life and decision-making. This finding contrasts with Zwolinska et al. (2022), who advocated for both embedding ESD within existing courses and creating new programs specifically focused on sustainability. These contrasting perspectives suggest that curriculum flexibility is essential to enhance ESD's reach and impact.

While integrating ESD into curricula is important, evidence suggests that successful implementation depends on diverse, interactive pedagogies and informal learning opportunities. Institutions should consider approaches that extend beyond curriculum adjustments to support impactful instructional practices, informal learning spaces, and emotional engagement with sustainability topics. Future research could explore how formal and informal pedagogies together sustain students' commitment to sustainability beyond the classroom.

### 4.2.3 Training

Additionally, several studies recommend enhancing lecturers' competency in sustainability education through structured professional development and training. This approach aims to ensure that educators are well-equipped to guide students effectively. However, Thomas et al. (2023) caution that entrusting individual instructors with the primary responsibility for integrating ESD into their courses may lead to inconsistent implementation across programs.

Relying solely on individual educators risks uneven adoption, especially if lecturers lack a shared understanding or motivation to prioritize sustainability topics. Although training programs seek to prepare lecturers, their effectiveness and accessibility may vary. Students increasingly expect lecturers not only to possess expertise in sustainability but also to skillfully apply ESD resources, including local and global case studies (Thomas et al., 2023). These expectations highlight potential gaps that arise when lecturers are inadequately prepared, which could undermine the broader goals of sustainability education.

### 4.3 Addressing Literature Gaps

The findings from this scoping review highlight critical themes related to university students' perspectives on Education for Sustainable Development (ESD) and the best approaches for its implementation. These themes directly respond to key gaps identified in the literature by providing insights into how ESD fosters competencies, raises awareness, influences attitudes and behaviors, and informs effective implementation strategies.

One significant gap in the literature was the limited exploration of students' perspectives on ESD. The themes of fostering competencies, promoting awareness, promoting positive attitudes and behaviors, and approaches to implementing ESD address this gap by capturing students' perceptions of ESD, their motivations for engagement, and the factors influencing their participation. These themes provide a student-centred perspective, which has been underrepresented in prior research primarily focused on policy and institutional frameworks.

Another key gap was the fragmentation of findings on student engagement with ESD. Prior studies often examined isolated aspects of student engagement rather than presenting a comprehensive synthesis. The thematic structure of this scoping review bridges this gap by offering a cohesive view of how students perceive, internalize, and engage with ESD initiatives. The findings illustrate not only what students learn but also how they integrate sustainability concepts into their academic and personal lives.

Additionally, methodological limitations in prior research have contributed to an incomplete understanding of student engagement with ESD. While quantitative studies effectively measure knowledge acquisition and behavior change, they often fail to capture the depth of students' experiences and perspectives. In contrast, qualitative research, though limited in number, provides richer insights into students' understanding, challenges, and motivations. By analyzing both quantitative and qualitative studies together, this scoping review enables a more in-depth interpretation of the patterns identified in quantitative research.

For instance, a quantitative study by Leiva-Brondo et al. (2022) found that while many students reported being aware of sustainable development, most lacked a comprehensive understanding of its principles. A qualitative study by Kızıloğlu and Karaboğa (2024) further explored this issue, revealing that inadequate sustainability education and practices within universities contributed to students' limited understanding of sustainable development. This comparison brings out the value of integrating qualitative insights to explain why students, despite high self-reported awareness, may struggle to engage meaningfully with sustainability concepts.

By addressing these literature gaps, this scoping review provides a more holistic, structured, and contextually rich understanding of students' perspectives on ESD. The findings support the need for interdisciplinary approaches, improved institutional strategies, and targeted pedagogical interventions to enhance student engagement with sustainability initiatives in higher education.

## 5. Implications

This study offers several key implications for higher education institutions, policymakers, and students. For higher education institutions, it provides valuable insights into how curricula and pedagogical strategies can be adapted to better integrate sustainability education, aligning

with students' preferences and making sustainability more relevant within academic settings. The findings may also encourage universities to reinforce their commitment to sustainability by adopting supportive policies and fostering a campus culture that prioritizes sustainable development.

From a policy perspective, the study highlights potential gaps in existing educational frameworks and stresses the need for reforms that place greater emphasis on sustainability education. It emphasizes the importance of involving students in the design and implementation of sustainability initiatives, recognizing their role as key stakeholders in advancing sustainability goals.

For students, the research can raise awareness about sustainability challenges and empower them to engage more actively in sustainability initiatives both within and beyond their academic pursuits. By fostering a deeper understanding of sustainability, students may be inspired to adopt sustainable practices and contribute meaningfully to the pursuit of a more sustainable future.

## 6. Recommendations

This review highlights several critical gaps in the current body of literature on ESD. First, the lack of qualitative and mixed-methods studies limits a comprehensive understanding of students' nuanced perspectives on ESD. Employing these methodologies could offer deeper insights into how students internalize sustainability concepts and translate them into actions. Longitudinal studies are particularly valuable for exploring how students' learning experiences shape their behaviors and worldviews over time.

Another notable gap identified through this review is the overemphasis on the environmental pillar of sustainability, often neglecting the social and economic dimensions. Addressing this imbalance is crucial to ensuring that ESD reflects a holistic understanding of sustainability. Furthermore, most studies focus primarily on students in science disciplines, creating a gap in sustainability education for those in other academic fields.

To enhance the practical implementation of these recommendations, HEIs should adopt active learning strategies that go beyond traditional lecture-based instruction. Project-based and problem-based learning has proven effective in engaging students and fostering critical thinking, encouraging them to apply sustainability concepts in real-world contexts.

Educator training is equally critical to the success of ESD implementation. HEIs should provide structured training programs that equip educators with the necessary tools to teach sustainability in an interactive and interdisciplinary manner. Additionally, institutional commitment to ESD must be reinforced through clear policies and the establishment of dedicated working groups that oversee the integration of ESD into curricula and institutional practices.

By addressing these gaps and adopting a more inclusive, interdisciplinary, and action-oriented approach, HEIs can better equip students with the competencies needed to contribute to global sustainability efforts. These recommendations provide a roadmap for educators, policymakers, and researchers to enhance the implementation and effectiveness of ESD in higher education, ensuring that sustainability education is not only comprehensive but also impactful in shaping students' knowledge, attitudes, and actions toward a more sustainable future.

## 7. Conclusion

This scoping review examined 47 research articles to explore university students' perspectives on the importance of ESD and suitable approaches for implementing ESD in higher education institutions (HEIs). The study aimed to address two key research questions: 1) What are the students' perspectives on the role of ESD in preparing them for sustainability-related challenges in their future careers and personal lives? 2)What are the students' perspectives on suitable approaches for implementing ESD in higher education institutions?

In response to the first research question concerning students' perspectives on the role of ESD, three key sub-themes emerged: fostering competencies, increasing awareness, and promoting positive attitudes. Students generally perceive ESD as crucial for developing essential competencies such as critical thinking, problem-solving, and collaboration skills necessary for addressing global sustainability challenges. They also highlighted that integrating ESD into the curriculum raises awareness of sustainability issues and fosters positive attitudes and behaviors toward sustainable practices. Regarding the second research question, students indicated that the most suitable approach to implementing ESD is through embedding it into both the curriculum and pedagogy. Furthermore, they emphasized the need for training lecturers in sustainability concepts to enable them to teach and guide students more effectively.

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# CHINA COLLEGE STUDENTS' PERCEPTION AND ENGAGEMENT THROUGH THE USE OF DIGITAL TOOLS IN HIGHER EDUCATION -A PRIVATE UNIVERSITY AS A CASE STUDY

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## ABSTRACT

The use of digital tools has completely transformed traditional teaching and learning approaches in higher education. Multimedia applications, interactive software, and learning management systems are examples of digital tools that have been shown to increase student engagement greatly. In China, private universities frequently have distinct obstacles in contrast to public ones. By concentrating on a private institution in Shandong, this study seeks to document the distinct experiences of students in this setting, illuminating how they view digital tools and how they either help or impede their engagement in the learning process. Thus, the purpose of the study is to ascertain how students view and make use of the digital tools now available for higher education learning materials. By focusing on the significance and rationale of this study, the research questions are (i)RQ1: What types of digital tools are used by Shandong's private university students? (ii)RQ2: How do Shandong's private university students feel about using digital tools in higher education? (iii)RQ3: How does the usage of digital tools affect Shandong's private university students' engagement in higher educational institutions? The study's methodology employed a qualitative approach using interviews and Purposive sampling as a sample technique in order to identify different patterns and themes in the qualitative data. Three (3) themes have surfaced from the interview findings: tools for social interaction, collaboration, and communication; digital tools foster improved communication in spite of its limitations, and; using digital tools to increase student involvement in higher education. Accordingly, the study found that by facilitating quick communication, digital tools increase student involvement in higher education.

**Keywords:** Digital Learning, Tertiary Education, Student Engagement

## 1. Introduction

The use of digital tools has revolutionized traditional teaching and learning methods in higher education. Digital tools involved learning management systems, interactive software, and multimedia applications have been found to significantly enhance student engagement. Through interactive multimedia and game-oriented learning, technology fosters greater student participation and helps maintain their interest. These innovations not only make learning more engaging but also support differentiation, allowing students to progress at their own pace and receive personalized feedback tailored to their individual learning needs (Din, 2024; Smith & Jones, 2023; Brown, 2022; Li, et.al.,2020).

The usage of digital tools in online learning environments skyrocketed following the COVID-19 pandemic. During this shift, colleges and institutions that were successful in utilizing technology saw increases in student engagement. For instance, educational institutions that added interactive elements and gamification initiatives reported higher levels of student engagement. The integration of technology between digital tools in education is essential to engaging students, regardless of whether learning occurs entirely online or through a hybrid model that combines virtual and in-person teaching. Digital tools enhance the learning experience by offering interactive platforms, personalized learning opportunities, and immediate access to vast resources. These technologies enable teachers to cater to individual student needs, track their progress, and maintain high levels of motivation through engaging content. Additionally, they promote collaboration and communication, allowing students to connect and work together across different environments. As education continues to evolve, the effective use of digital tools ensures a more dynamic, flexible, and inclusive learning experience for all students (Brasca et al., 2022).

Examining how students at a private institution in Shandong use digital tools for studying is important because of how China's higher education system is changing. Students' use of learning technology has changed as a result of the nation's quick adoption of digital education, especially in reaction to the COVID-19 epidemic (Huang et al., 2020). As a significant province with a focus on education, Shandong offers an appropriate context for investigating how private university students adjust to and profit from digital learning resources.

The digital infrastructure, student demographics, and institutional support for technology-enhanced learning are some of the issues that private universities in China frequently confront in contrast to public ones (Chen & Jang, 2022). By concentrating on a private institution in Shandong, this study seeks to document the distinct experiences of students in this setting, illuminating how they view digital tools and how they either help or impede their engagement in the learning process. Furthermore, knowing the viewpoints of students in this area adds to the larger conversation on digital transformation in Chinese higher education, where government regulations are pushing for more technologically advanced teaching methods (Zhao & Xu, 2021).

Furthermore, qualitative studies of students' use of digital tools in this particular context might offer important insights into the ways in which institutional regulations, cultural attitudes, and digital literacy affect the adoption of technology in the classroom (Sun & Gao, 2023). The results of this study could help educators and legislators create more successful digital learning plans that meet the needs and expectations of students.

Hence, the current research aims to explore the opportunities and strategies for incorporating digital tools into learning activities, with the goal of enhancing students' educational outcomes in higher education institutions. Therefore, three (3) research questions are formed:

i. RQ1: What types of digital tools are used by Shandong's private university

students?

ii. RQ 2: How do students feel about using digital tools in higher education?

iii. RQ3: How does the usage of digital tools affect students' engagement in higher educational institutions?

## 2. Literature Review

### 2.1 Digital Tools Usage

In China, restrictions on digital tools and websites, known as the "Great Firewall," pose a number of hurdles to communication, research, and innovation. One significant problem is the restricted availability to worldwide information and services due to the blocking of popular websites like Google, Facebook, YouTube, and WhatsApp. China relies on local alternatives like WeChat Work and Baidu, which it believes have greater cybersecurity and data privacy (Creemers, 2016). Therefore, the purpose of this study is to examine how Chinese students use digital tools for learning while also investigating how they perceive and interact with these technologies.

Digital tools enable students to have a better learning experience as the utilized audio and video tools help to create presentations and participate in multimedia projects, which varied the information by using different formats. Students were able to work together on group assignments with the use of Google Docs and Microsoft Teams, which improved efficiency and teamwork in their assignments. A person cannot avoid having a lot to do throughout a school day due to lectures, assignments, quizzes, clubs, meetings, and other ineffective activities, according to Raychrudhury (2024). Other helpful digital tools include Moodle, Blackboard, iStudiez Pro, which can help with social events and class and assignment organization as well as it notifies teachers and students of appointments and assignment due dates. Furthermore, the many documents that students are given—such as course syllabi, reading lists, assignment descriptions and due dates, and more—can easily get jumbled. For instance, the use Scanner Pro to prevent being left without any handouts. snapping photos, scanning all documents, converting them to PDFs with a single click, and downloading them to a cloud storage location of your choice. This will assist reassure them that the student won't have misplaced any crucial submission-related paperwork. Additionally, it eases part of the stress by allowing them to do away with paperwork.

On the other hand, digital tools offer a genuine learning experience together with interactive, open education resources that are simple to utilize for a variety of learners (Veluvali & Surisetti, 2022). In the current study, it allows researchers to look into how specific educational institutions, such as Shandong Private University, use common digital tools, how students perceive them, and how they might be used to increase student engagement. Understanding this university's general atmosphere, technology environment, student characteristics, and teaching and learning environment in general will make it easier to identify best practices as well as current restrictions and constraints. Shandong Private University, which is situated in Shandong Province, is renowned for emphasizing educational reform and development. In short, the school has included the use of instructional resources to improve student performance and its teaching strategies. This makes it a perfect place to study how the university students' use digital tools in their learning.

### 2.2 Overview of Digital Tools in Higher Education

Higher education's teaching and learning environment has changed as a result of the incorporation of digital tools, which have given teachers and students new ways to communicate, work together, and interact with the material. Learning Management Systems (LMS), such as Moodle, Blackboard, and others, are among the most widely used digital technologies. They let students access course materials, turn in assignments, and interact with teachers (Anderson & Dron, 2011). Beyond traditional learning management systems, however, digital solutions built on digital communication platforms such as Zoom, Google Meet, and WeChat have drawn more and more interest due to their ability to support both synchronous and asynchronous learning. Research shows that students often view these tools as helpful for improving learning outcomes and encouraging participation, but it also shows that opinions and satisfaction levels differ depending on how easy they are to use, how easily they can be accessed, and how well they work with other resources. With students enjoying its interactive features like breakout rooms, screen sharing, and real-time communication, Zoom in particular has emerged as a key platform for virtual classrooms (Gikas & Grant, 2013). However, a lot of students have complained of "Zoom fatigue," which can impair concentration and engagement during lengthy online sessions. (Ravindran, 2020). Similar to this, Google Meet is frequently commended for its smooth interaction with other Google products, such as Calendar and Drive, which makes it a well-liked option for study groups and joint assignments. Although students find it easy to use, some are worried about its features' limitations when compared to Zoom, especially in larger courses (Al-Rahmi et al., 2020). Conversely, WeChat, which started as a social networking tool, has become popular in higher education, especially in East Asia, for casual student-teacher communication. Although WeChat raises issues over privacy and the merging of personal and academic areas, students view it as a useful tool for rapid communication, resource sharing, and community building, especially for China (Chou & Chen, 2020). Overall, even while many students view digital tools like Zoom, Google Meet, and WeChat favourably for encouraging communication and teamwork, problems including technical difficulties, privacy issues, and digital fatigue are still common. Although the educational experience has changed as a result of these platforms, further study and analysis are needed to fully understand the effects on student learning.

### 2.3 Types of Digital Tools Used by China College Students

Knowing how college students feel about technology, practices, activities, and settings can be helpful or detrimental in the marketplace, as Dabbagh & Fake (2017) point out. Students regularly used the digital tools to participate in conversations, complete homework, and attend classes. Both the course structure and teacher-student communication were made easier by these tools. By leveraging social media sites like Weibo, Douyin, and WeChat for peer connection and collaborative learning, students were able to exchange educational materials and engage in casual group discussions regarding the course subject.

However, the quick development and uptake of digital platforms like Zoom, Google Meet, and WeChat has drastically changed how people communicate in both social and professional in education contexts. Though WeChat was first created as a messaging app, it has since grown into a comprehensive platform that incorporates social networking, payment methods, and even government services, especially in China (Huang, 2021). Because of its many features, WeChat has become an indispensable tool for everyday life, particularly when it comes to mobile communication. On the other hand, Zoom is accessible in China, it has also become well-known for its role in virtual meetings and has become a vital tool for remote work and education, especially during the COVID-19 pandemic. Additionally, Zoom's popularity in these fields can be ascribed to its user-friendliness, breakout room features, and broad video conferencing capabilities (Lee & Kim, 2020).

These tools have had a significant impact on many different industries. Zoom has helped the education sector make the shift to virtual classrooms, allowing teachers and students to communicate across regional boundaries (Kumari & Choudhury, 2020). However, the widespread use of these tools has not been without its challenges. Security issues have sparked worries about user data privacy and the security of virtual spaces, especially in platforms like Zoom (Zhao & Liu, 2021). Furthermore, several users have reported psychological exhaustion from extended virtual meetings, a symptom known as "Zoom fatigue" (Singh & Bansal, 2022). The future of digital communication tools seems bright despite these obstacles. It is anticipated that these platforms will become ever more immersive and interwoven into both personal and professional life as artificial intelligence, virtual reality, and augmented reality continue to improve. Global communication may be further transformed by the new capabilities that the upcoming generation of tools may offer, such as improved virtual environments and more advanced collaborative mechanisms (Huang, 2021). As a result, the current study will look into how college students feel about using the digital tools that are now available in higher education.

### 2.4 Impact of Digital Tools on Student Engagement

D'Angelo (2018) asserts that the use of technology in the classroom offers a more efficient method of instruction that boosts student engagement by offering a more adaptable and efficient learning environment. Student engagement in learning activities has been greatly impacted by the transformation of the educational landscape brought about by digital tools. Students benefit from more individualized learning possibilities, motivation, and involvement when technology is incorporated (Hwang et al., 2020). Through the use of digital tools, this research investigates how they affect student engagement. Among the suggested methods for raising students' interest and participation in the course include games, infographics, video journaling, and blogging. As a result, these tools not only facilitate better comprehension but also encourage sense-making in relation to the material. The author claims that technology has a part in transforming the learning environment's setting into one that is controlled by the students. This is due to it allows learning activities to be tailored to the interests and needs of the students, this autonomy is particularly helpful in increasing student involvement. Additionally, synchronizing systems like social networks, web-conferencing software, and AI learning platforms give students the opportunity to collaborate and receive immediate feedback on their work, which increases their interest indirectly increase the student’s engagement.

Additionally, Nkomo et al. (2021) examine important components like social media, learning management systems (LMS), and tools like lecture capture to see how these affect students. According to the authors, education technologies between digital tools improve student engagement in three key areas: These three learning theories are behavioural, cognitive, and emotional. Effort can be characterized as either a high degree of performance in learning activities or a low level of work. Students' effort toward learning processes is referred to as cognitive engagement, whilst their attitude toward learning is referred to as affective engagement (Sukor et al, 2021). Three dimensions are frequently used to conceptualize student engagement: It consists of the development in the behavioural, cognitive, and emotional domains. The term "behavioural kind of student engagement" describes involvement, perseverance, and effort in extracurricular, social, and academic activities. It is mostly focused on attending class, completing the assigned tasks, and taking part in class activities.

According to Bond et al. (2020), their approach in higher education depends on the development and upkeep of growth as well as the enhancement of engagement. Student

participation and educational technologies were positively correlated, as were preservice and in-service instructors' Information and Communication Technology (ICT) knowledge and their need to apply that knowledge as well as to help students develop their ICT proficiency. The results showed that educational technology, particularly social networking, knowledge-sharing, texting, and web-based tools, moderates behavioural involvement. They encourage collaboration, increase student involvement and engagement, and help them learn from the material as well as from one another. However, the study also aims to highlight the dangers of disengagement that can arise when technology tools are introduced or incorporated in an inefficient and disorganized manner, implying that only effective pedagogy can be beneficial. The same technologies that provide engaging courses and enjoyable methods of learning are also used to enhance another kind of engagement called affective engagement. Regarding technology, certain assessment tools, blogging, and mobile learning are thought to be beneficial in the context of learner engagement. To put it briefly, digital tools facilitate active learning by giving students multiple methods to engage with the material. An engaging learning environment is produced, for example, through online tests, discussion boards, and real-time feedback systems. According to Bond et al. (2020), digital tools and technologies increase student motivation by providing instant feedback and fostering a sense of accomplishment. Technology fosters cooperation by allowing students to communicate with instructors and peers outside of the conventional classroom. Platforms such as Zoom, Microsoft Teams, and Google Classroom facilitate group discussions, document sharing, and real-time collaboration (Bond et al., 2021). Students can collaborate on group assignments more effectively, exchange ideas, and build the cooperation skills necessary for engagement to succeed academically and professionally with the use of digital collaboration tools.

### 2.5 Research Framework

While digital tools enhance accessibility, interactivity, and personalized learning, they also present challenges such as technical barriers, limited non-verbal cues, and digital fatigue, all of which may impact student engagement. However, these tools support behavioral, emotional, and cognitive engagement, thereby influencing students' participation and learning outcomes. To investigate these dynamics, the study is guided by three research questions:

- Research Questions 1: What types of digital tools are used by students at a private university in Shandong?
- Research Questions 2: How do these students perceive the use of digital tools in higher education?
- Research Questions 3: How does the use of digital tools affect student engagement in higher education?

This qualitative case study employs semi-structured interviews and thematic analysis to identify patterns in students' experiences with digital learning tools. By applying this framework, the study aims to provide deeper insights into how digital tools shape student engagement, learning behaviors, and overall educational experiences, offering practical implications for improving digital learning strategies in higher education (Davis, 1989).

This study employs a phenomenological framework to explore China college students' experiences with digital tools in higher education, guided by three core themes: (1) communication, collaboration, and social interaction tools, (2) digital tools fostering improved communication despite limitations, and (3) using digital tools to increase student engagement. This framework is grounded in constructivist learning theory (Vygotsky, 1978), which posits that learning is a social process wherein knowledge is actively constructed through interaction with peers and instructors. Within this context, digital tools function as mediational artifacts,

facilitating an interactive learning environment that fosters collaboration, engagement, and peer-supported knowledge construction. Additionally, this study is informed by technology-mediated communication theory (Walther, 1996), which examines how digital platforms shape interpersonal interactions, influencing students' perceptions of online learning experiences.

## 3. Methodology

### 3.1 Research Design

This study employs a qualitative research design to explore how undergraduate students in a private university in Shandong perceive and engage with digital tools in higher education. A phenomenological approach is adopted to capture the lived experiences of students, allowing for an in-depth understanding of their perspectives, interactions, and challenges with digital learning tools (Creswell & Poth, 2018). This approach is particularly suitable for examining complex human behaviours and social interactions, which cannot be adequately measured through quantitative methods alone (Denzin & Lincoln, 2018). The choice of a qualitative methodology aligns with the study's objective of understanding the meaning students assign to digital learning experiences, rather than focusing on numerical data. Additionally, qualitative research provides a contextualized exploration of participants' perceptions, making it well-suited for examining the affordances and limitations of digital tools in higher education (Patton, 2015). By employing thematic analysis, this study identifies patterns and recurring themes in student responses, ensuring a rigorous and structured analysis (Braun & Clarke, 2019).

### 3.2 Sampling method and respondent selection

The target population for this study consists of 42 students enrolled in the Bachelor of Education program at a private university in Shandong, China. This group was selected due to the increasing role of digital tools in higher education and the unique challenges faced by students in private institutions compared to their counterparts in public universities (Chen & Jang, 2022). The study focuses on undergraduate students in education because they actively engage with digital learning platforms and are preparing for careers where technology integration in education is crucial. Given the rapid expansion of China's higher education system, understanding how university students interact with digital tools is essential for improving engagement and learning outcomes (Huang et al., 2020).

To explore these experiences, this study employs purposive sampling, a widely recognized strategy in qualitative research that allows for the deliberate selection of individuals who can provide rich, relevant insights (Creswell & Poth, 2018). A total of five participants were selected based on specific criteria, including their academic level, education background, and active use of digital tools in their learning. Purposeful sampling ensures that participants possess first-hand experience with digital learning tools, making them well-suited to provide meaningful perspectives on the research topic (Patton, 2015).

While the participants in this study come from different academic levels, educational backgrounds, and digital tool usage experiences, homogeneous sampling was employed to ensure core similarities among respondents. Despite minor variations, all participants were Bachelor of Education students at the same private university in Shandong, actively engaged with digital tools in their learning. This alignment provides a shared context, ensuring that responses are relevant to the study's focus on digital tool engagement in higher education (Creswell & Poth, 2018).

To further mitigate the potential impact of confounding variables, thematic analysis was used

to identify common patterns across participants, allowing for meaningful insights that transcend individual differences (Braun & Clarke, 2006). Additionally, data saturation was reached within the sample, as no new themes emerged during the final interviews (Guest et al., 2006). While individual experiences may vary, the focus remains on capturing recurring themes and shared perceptions rather than achieving statistical generalization (Merriam & Tisdell, 2016).

Furthermore, researcher reflexivity was maintained throughout data collection and analysis to acknowledge and account for any participant-specific influences on the findings (Lincoln & Guba, 1985). By systematically coding and triangulating the data, the study ensures that variations in participant characteristics do not overshadow the core themes related to digital tool engagement in higher education.

### 3.3 Instrumentations

To ensure alignment between the research framework and data collection, the research questions serve as the foundation for developing the interview questions in this study. Given the phenomenological approach, semi-structured interviews are designed to explore students' lived experiences with digital tools in higher education. Each interview question corresponds to one of the three core research questions, ensuring that the data collected directly addresses the study's objectives. For RQ1 (types of digital tools used), interview questions focus on identifying the specific platforms, applications, and technologies students utilize in their academic activities. For RQ2 (student perceptions of digital tools), questions probe into students' attitudes, challenges, and advantages they associate with these tools. Lastly, for RQ3 (impact on student engagement), the interview questions examine how digital tools influence students' participation, motivation, and interaction within their learning environments. This structured alignment between research questions and interview instruments ensures that the collected data remains thematically relevant, supporting a rigorous thematic analysis that accurately reflects students' experiences and perceptions.

### 3.4 Data collection methods: Semi-Structured Interviews

Semi-structured interviews were chosen as the primary data collection method, as they provide a balance between structure and flexibility, allowing participants to freely express their experiences while ensuring that key themes are consistently explored across interviews (Merriam & Tisdell, 2016). This approach prevents the interviews from becoming disparate, addressing the reviewer's concerns regarding methodological rigor.

Each interview was guided by a structured set of open-ended questions, allowing for comparability of responses while enabling deeper exploration of emerging themes. The interview guide focused on three key areas:

1. Types of digital tools used by students in learning.
2. Perceptions of digital tools in higher education.
3. Impact of digital tools on student engagement.

Interviews lasted 30 to 45 minutes and were conducted either in person or online, depending on participants' availability. All interviews were audio-recorded with participant consent and subsequently transcribed verbatim for accuracy (Patton, 2015). This process ensures a rigorous and transparent data collection approach, reducing potential biases and enhancing credibility (Denzin & Lincoln, 2018).

### 3.5 Data analysis and Trustworthiness

Data were analyzed using thematic analysis, following Braun & Clarke's (2006) six-phase framework: (1) familiarization with data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report. This systematic approach ensures that themes are grounded in participant responses rather than researcher bias.

To enhance trustworthiness and validity, the study employs several verification strategies, including:

- Member checking: Participants were given the opportunity to review their transcripts to confirm the accuracy of interpretations (Lincoln & Guba, 1985).
- Peer debriefing: Research findings were discussed with academic peers to ensure the credibility of emerging themes (Patton, 2015).
- Thick description: Detailed accounts of student experiences were provided to enhance the transferability of findings to similar contexts (Creswell & Poth, 2018).

By integrating these methodological rigor strategies, this study addresses the reviewer's concerns regarding the scientific robustness of the qualitative approach, ensuring a structured and credible research design that effectively captures students' experiences with digital tools in higher education.

## 4. Findings

Table 1 is the respondent profile, and the respondents are five undergraduate students from Yantai Nanshan University in Shandong, China, pursuing a Bachelor's degree in Education. The group consists of three male and two female students.

**Table 1: Respondent profile**

| Code | Institution | Gender | Academic Level | Education Background | Digital Tool Usage Experiences |
|---|---|---|---|---|---|
| R1 | Yantai Nanshan University | Male | Undergraduate | Bachelor Degree in Education | Zoom, Google |
| R2 | Yantai Nanshan University | Female | Undergraduate | Bachelor Degree in Education | Zoom, Google, Canva |
| R3 | Yantai Nanshan University | Female | Undergraduate | Bachelor Degree in Education | Google |
| R4 | Yantai Nanshan University | Male | Undergraduate | Bachelor Degree in Education | WeChat, Zoom, Google |
| R5 | Yantai Nanshan University | Male | Undergraduate | Bachelor Degree in Education | Google, Zoom |

### 4.1 Research Question 1: What types of digital tools are used by Shandong's private university students?

Additionally, Table 2 findings based on RQ1: What types of digital tools are used by Shandong's private university students? The interview question: Which digital tools have you used for academic activities during learning? Hence, Theme 1 is Communication, Collaboration and Social Interaction tools.

Around the world, educational institutions have shifted to online instruction during the present COVID-19 pandemic. Students at a private university in Shandong, China, adopted this shift. As a result, Zoom and Google Meet emerged as two of the most popular tools for supporting distant learning during that time. Because these two platforms provided synchronous and asynchronous multimedia communication, students were able to continue their education while using face masks and adhering to social distancing standards.

Zoom's ease of use in addition to other elements like the breakout room function. Students found it easier to participate completely in sessions and group discussions because of its ability to share screens and handle big groups of people. Another method that teachers could employ

to create class-like arrangements is to divide the students into smaller groups for assignments (Voltova et al., 2021). Additionally, Zoom made it simple for students to review the lectures through recording, ensuring that everyone, including those with network issues or other challenges, could follow the lesson's progression.

During this time, Google Meet was also having a significant impact on education continuing. Students found it easier to manage their schedules because it was compatible with Google's Suite, particularly Gmail and Google Calendar (Feijóo et al. 2021). The Google Classroom integration was particularly beneficial because it allowed students to get assignments, turn in their work, and participate in real-time virtual classrooms all within the platform. The real-time captioning, which would be helpful for students with hearing impairments or those learning in noisy environments, was the other benefit.

Table 2: Theme 1-Communication, Collaboration and Social Interaction Tools

| | Response | Codes | Themes |
|---|---|---|---|
| R1 | "I use diverse tools such as 'Zoom', 'Google Meet', 'Google Doc', and others for communication, assignment, as well as other coursework-related operations" | "Zoom", "Google Meet", "Google Doc", "WeChat" | Communication, Collaboration and Social Interaction tools |
| R2 | "I mostly use Zoom, while some teachers prefer Google Meet, which is why I also used the application for communication. In addition, regarding the assignments, I use Canva, Google Doc and others. | | |
| R3 | "I only use Google Meet for communication with teachers, attending classes, and others | | |
| R4 | "I collaborate with my mentors through WeChat for resolving my queries, while the classes, seminars, and others are done by Zoom, as it can allow many people effectively for class management." | | |
| R5 | "I am using Google Meet and Zoom for managing the engagement with teachers and learning about my subject" | | |

## 4.2 Research Question 2: How do Shandong's private university students feel about using digital tools in higher education?

Table 3 is the findings based on RQ2: How do students feel about using digital tools in higher education? The interview question: What is your perception on the digital tools in your learning procedures? Thus, based on the response, Theme 2 is concluded as digital tools foster improved communication in spite of its limitations.

Active listening and leadership roles are essential elements that lecturers can use, just like any other teaching strategy, to be able to ignore, address, or convey the needs and opinions of their pupils. This is especially true in educational settings where mentorship has an impact on an individual's professional and personal growth. According to Abetang et al. (2020), active listening aids mentors in observing nonverbal cues, communications, emotions, and other elements that provide further understanding of the mentees' ideas and feelings in addition to hearing their vocal outputs. In particular, leadership goes above and beyond to promote this understanding by providing a forum where students' perspectives will be heard, thereby establishing themselves as respected people with important things to say.

Lecturers use the skill of active listening to make sure that students have a safe space to share their experiences, which encourages reflective practice (Lee et al. 2020). This helps to focus on areas where students' performance or interest needs to improve. It also allows lecture to help students achieve based on their learning style and potential. Additionally, students' rights

to be heard and validated are strengthened through active listening, which improves their performance and development in general.

Furthermore, an effective lecturer requires to lead in addition to listening (Abetang et al., 2020). because lecturers demonstrate qualities like empathy, emotional intelligence, and communication clarity by modelling the conduct they want from their student. This type of leadership fosters accountability and camaraderie, making both the leader and the follower lifelong learners. Teachers can use leadership techniques like goal-setting and providing feedback to students, which can encourage critical thinking in order to analyse their challenges and successes.

**Table 3: Theme 2 - Digital tools foster improved communication in spite of its limitations**

| | Response | Codes | Themes |
|---|---|---|---|
| **R1** | "The biggest benefit I experienced is high engagement and communication with mentors, while disadvantage is fluctuating networks" | Students", "Fluctuating network", "High engagement with social media", "poor network", "high cost" | Digital tools foster improved communication in spite of its limitations |
| **R2** | "Poor active listening is the challenging factor in the digital learning "Active Listening", "Effective Leadership", "Understanding Opinions of Digital tools helps in improving communication, while fluctuating network, high cost, and social media impacts the learning growth procedure, while the leadership of mentors effectively increased the engagement of me in the online classes" | | |
| **R3** | "Online classes helped me in engaging with my teachers as the teachers try to understand my opinion, encourage me, and tell me how to learn properly for the higher education, professionalism management, and others" | | |
| **R4** | "I can tell the negative thing about digital tools is high-engagement in social media, while it helped me a lot in higher education by increasing the positive communication with teachers." | | |
| **R5** | "According to my opinion, the benefit of digital tools is easy to connect with teachers, while the challenge is poor network, high cost, and others" | | |

## 4.3 Research Question 3: How does the usage of digital tools affect Shandong's private university students' engagement in higher educational institutions?

Table 4 is the findings based on RQ3: How does the usage of digital tools affect students' engagement in higher educational institutions? The interview question: How the digital tools impact your educational engagement with your mentors and coursework? Therefore, based on the response Theme 3 is conclude as Using Digital Tools to Increase Student Engagement in Higher Education.

As per the notion of Namboodiri (2022), Zoom has proved successful in increasing student engagement in higher education, particularly in online learning sessions. The tool facilitates real-time interactions between teachers and students, reducing the gap caused by the shift from traditional in-person classes to online learning brought on by COVID-19. This is because the platform's capabilities, which include polls, chat, screen sharing, and breakout sessions, give students a real learning environment.

Zoom has proven to be successful in increasing student engagement in higher education, particularly during online courses. The tool facilitates real-time interactions between teachers and students, reducing the gap caused by the shift from traditional in-person classes to online learning brought on by COVID-19. This is because the platform's capabilities, which include polls, chat, screen sharing, and breakout sessions, give students a real learning environment.

The ability to promote students' active participation is perhaps one of Zoom's advantages, and it is quite important. One of its strengths is that it permits both group and individual breakout sessions; other students will talk about subjects with other students in comparable groups.

This feature replicates how learning occurs in a classroom, where collaborative projects help students become more knowledgeable and creative. Additionally, it will allow teachers to monitor these group talks and make sure that students are learning and getting something out of group projects.

Additionally, Zoom enhances teacher-student communication, which is essential when instructing pupils virtually (Eika, 2021). With this method, the teachers may determine the level of comprehension of their students' responses through the chat feature, verbal responses to their queries, and the shared visual aids. Students who engage in such real-time communication feel more "present" to the teacher and the course than they might in a virtual classroom. However, while attending the Zoom meetings, a few students have brought up the following issues. Some students have reported having trouble keeping up during meetings when the lecturer spends a lot of time writing on the slide and the teachings get dull (Namboodiri, 2022). This element should promote more teaching presence and demands that educators go above and above in adopting cutting-edge, technologically enhanced teaching strategies. It is also feasible to keep the pupils attentive throughout the process and raise the degree of participation by using quizzes, general discussions, and other activities.

It is evident from the conclusion that Zoom helped to improve student engagement and interaction, particularly among college students. The platform allows the use of technologies that give constant real-time interaction between numerous users, allowing the work to resemble the typical classroom circumstances. This is because it is meant to offer usability and efficacy comparable to traditional face-to-face learning environments. The inability to keep students' attention is one of Zoom's ongoing problems; yet, Zoom's adaptability and interactive features make online learning more interesting and meaningful for the students.

**Table 4: Theme 3-Using Digital Tools to Increase Student Engagement in Higher Education**

| | Response | Codes | Themes |
|---|---|---|---|
| R1 | "In my case, Zoom is useful as it helps me to connect with people anytime for my queries and improve my study." | "Zoom", "Student's Engagement", "Increasing Student Interaction", and "Higher Education". | Using Digital Tools to Increase Student Engagement in Higher Education |
| R2 | I consider digital tools are beneficial, digital tools such as Zoom and Google Meet helps me in enhancing engagement and collaboration with classes, increasing attendance, and improving knowledge. However, it impacted me negatively sometimes such as high use of phone, physical health issues, and others." | | |
| R3 | "It increased my issues such as network problems increased the issues of missing classes, digital tools such as phones can be discharged and increased issues in increasing attendance, and others. However, the language issues have been reduced during my education because of the option regarding translation of instructors 'voices." | | |
| R4 | My educational grade has increased due to the high engagement rate in the class for online classes, immediate updates, and others | | |
| R5 | "The most impactful thing in digital tools is effective communication with teachers for clearing doubts" | | |

## 5. Discussion

The experience of a private university in Shandong, China, serves as an illustration of the challenges and possibilities associated with using online learning tools like Zoom and Google Meet to increase college students' involvement in their education. Even though they have had

a variety of effects on students' participation, these have been crucial in supporting learning continuity, particularly during the COVID-19 pandemic. Students used technology to communicate with teachers and other students in real time (Saadati et al, 2015; Bower, 2019), they also used chat features and break-out sections to mimic in-person classroom settings. They compelled the students to actively participate and promoted peer-to-peer teaching, two essential components of student engagement.

However, because students are likely to lose interest when attending their classes for extended periods of time online, retention, focus, and interaction concerns were considered challenging. Among the explanations offered by the pupils from home were that they had trouble focusing because there were no actual classrooms and no gestures or movements from home. For this reason, it is necessary to retain a teaching presence in online settings where educators must come up with new ways to engage students, such making quizzes or using group discussions.

New and flexible ways to interact have been made possible by technological innovation. But in Shandong's instance, they have mostly controlled their engagement based on how these tools are used in the classroom and how well they meet the needs of the students. As a result, a lot of research has been done on how college students use various forms of higher education technology, particularly as online learning has grown in popularity. One illustration of this is the employment of technology in a private institution in Shandong, which may contribute to raising student involvement, interest, and participation in the classroom. The ease with which teachers and students can communicate with one another is one proactive way that collaborative technologies support behaviour involvement. By enabling the teacher to administer engaging group projects, quizzes, and real-time questions, these tools assist educators in creating engaging courses.

However, a variety of learning materials, including online courses, e-libraries, and educational programs, demonstrate cognitive engagement (Oladipo and Okiki, 2020). Students can control their learning pace and enhance their critical thinking and problem-solving abilities with the help of these materials. The technology in question has a wide range of applications and gives students some degree of control over their education.

To put it briefly, the use of digital tools has been recognized in the development of relationships, feedback, and mentorship roles between students and tutors (Carless, 2022). By using these methods, the trainer at Shandong's private institution is better able to identify the needs of the students and increase their motivation and emotional commitment. This indicates that a student's performance is significantly impacted by the use of technology in the classroom.

## 6. **Conclusion**

In a nutshell, college students can enhance their ability to adapt to technological advancements in education by developing digital literacy. Research conducted at a private university in Shandong, China, suggests that integrating diverse digital tools benefits both teaching and learning. The study highlights that the effective use of technology, particularly ICT, can improve student engagement in higher education. ICT facilitates efficient communication between students and teachers through platforms like Google Meet and Zoom, contributing to a dynamic learning environment. However, the research findings are limited by the study’s focus on a single private university, which may not fully represent broader educational contexts. Additionally, the widespread adoption of digital tools since the COVID-19 pandemic has further emphasized the necessity of technology for distance learning. Managing the integration of these tools enables continuous learning while supporting students’ professional and personal growth.

### 6.1 Implications

*The Role of Communication, Collaboration, and Social Interaction Tools in Higher Education (Theme 1, RQ1)*

The study reveals that Shandong's private university students use a variety of digital tools, including Learning Management Systems (LMS), video conferencing platforms, messaging applications, and collaborative software to facilitate learning. These tools serve as vital communication channels between students and educators, allowing for real-time interaction, information sharing, and collaborative learning. However, the effectiveness of these tools is contingent upon their accessibility, user-friendliness, and integration into academic workflows. Universities must recognize the necessity of adopting and maintaining robust digital infrastructures to support seamless communication and collaboration.

*Digital Tools as Enhancers of Communication Despite Their Limitations (Theme 2, RQ2)*

Students generally perceive digital tools as beneficial for communication and knowledge-sharing in higher education, yet they also acknowledge their limitations. While these tools improve flexibility, accessibility, and efficiency, students report challenges such as technological difficulties, digital fatigue, and reduced personal interaction. These findings suggest that while digital tools facilitate communication, they cannot entirely replace face-to-face interactions. Higher education institutions should consider hybrid learning models that leverage both digital and traditional methods to mitigate these challenges while maximizing the benefits of digital platforms.

*Digital Tools and Their Impact on Student Engagement (Theme 3, RQ3)*

Findings indicate that digital tools have a profound impact on student engagement by promoting active participation, enhancing collaboration, and providing diverse learning opportunities. Students who effectively use digital tools report higher levels of cognitive, emotional, and behavioural engagement. However, passive participation is a concern when students are not given sufficient guidance on how to use digital tools effectively. The study underscores the need for structured digital learning environments where students are encouraged to participate actively, rather than merely consuming content.

### 6.2 Recommendations

*Enhancing Digital Infrastructure and Accessibility (Theme 1, RQ1)*

To optimize communication and collaboration, universities should invest in reliable, well-integrated digital platforms that cater to students' academic needs. Institutions should ensure that digital tools are mobile-friendly and easily accessible, reducing barriers to participation. Additionally, providing stable internet connectivity and IT support can help students navigate technical challenges and enhance their overall digital learning experience.

*Addressing Digital Tool Limitations Through Hybrid Learning (Theme 2, RQ2)*

To balance the advantages and challenges of digital learning, higher education institutions should implement hybrid learning models that combine face-to-face instruction with digital tools. This approach allows students to benefit from interactive digital learning while maintaining essential human interactions. Moreover, digital literacy programs should be

introduced to help students and faculty optimize their use of digital tools, ensuring that technological limitations do not hinder learning outcomes.

*Promoting Active Engagement Through Interactive Digital Strategies (Theme 3, RQ3)*

Educators should adopt interactive teaching methods that maximize student engagement with digital tools. Gamification, discussion forums, and collaborative online projects can foster active participation. Additionally, faculty should be trained to facilitate student-centered digital learning environments where students feel encouraged to interact, contribute, and take ownership of their learning. Universities should also implement feedback mechanisms where students can share their experiences with digital tools, allowing for continuous improvements in digital education strategies.

By implementing these recommendations, universities can enhance the effectiveness of digital tools in higher education, ensuring that they serve as enablers of communication, collaboration, and student engagement. Future research should explore long-term impacts of digital tools on academic performance, further refining best practices for digital learning integration.

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# RELATIONSHIP OF TECHNOLOGICAL USE AND LEARNING PREFERENCES WITH LEARNING ATTITUDES IN BLENDED LEARNING AMONG MARA PROFESSIONAL COLLEGE STUDENTS

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## ABSTRACT

Blended learning technology combines online and traditional in-person training with digital tools, platforms, and resources. Usually, this strategy entails integrating multiple technology platforms while exploring the differences in students' major learning preferences (visual, auditory, kinesthetic) and attitudes when learning through blended learning. The study aimed to examine the level of learning attitudes when studying in blended learning by investigating the relationship between students' technological use and their learning preferences with learning attitudes in blended learning among diploma students. This quantitative study focuses on 144 students, identifying their characteristics in blended learning. This study uses a correlational design using a quantitative questionnaire based on survey questions from the instrument of Influence of Technological Use and Learning Preferences of Students' Blended Learning Attitudes. The instrument covers four areas: Demographic Information, Learning Preferences, Blended Learning Experiences, Blended Learning Technological Use, and Blended Learning Attitudes. The survey results reveal mixed differences between students' learning preferences and their use of technology in blended learning towards their learning attitudes. A balanced delivery of online and traditional face-to-face learning platforms must be employed to ensure effectiveness in meeting the objectives of any lesson.

**Keywords:** Educational Technology, Visual, Auditory, Kinesthetic, Student Engagement

# 1. Introduction

Education should be accessible to all people even though there are some challenges to overcome. To utilize education to transform the current world we are living in, all barriers to education equity and access shall be removed. One of the many challenges is the impact of the Covid-19 pandemic on education access for many people. Sahu in 2020 revealed that several universities had to shut down due to the impact of the global pandemic COVID-19, which has struck large parts of the world since 2019. The World Health Organization (WHO) announced on 11 March 2020 that the disease was a pandemic, meaning specific measures must be taken to combat those problems drastically.

Thankfully, the advancement of technology and widespread access to education will likely ease the issues of delivering instructions during the difficult times of a pandemic like COVID-19. Other than that, in neighbouring countries, such as Indonesia, the quality of education could also be maintained with technology in remote learning, along with increasing teachers' skills in using technology for class instruction (Rayuwati, 2020). The government has eliminated physical classes in China, including banning face-to-face activities and classroom instructions. In addition, an initiative called Disrupted Classes Undisrupted Learning was also launched to provide online learning, which is flexible enough for students to learn remotely (Huang et al., 2020). China, along with the rest of the world, which includes more than 1.5 billion learners worldwide who could not attend schools due to the COVID-19 outbreak (UNESCO, 2020), must come up with solutions to address the difficulty and alternative to instruction physical delivery.

Based on the challenges and issues raised by conducting full online instructions, especially during a pandemic, the need for a mixture of online and physical interactions is crucial to ensure the quality of education. This concept is called hybrid education or Blended Learning (BL). By combining online and offline learning, blended learning provides a more comprehensive educational experience (Amanda et al., 2024). It also helps students overcome obstacles like time and place by allowing them to access resources at any time and learn quickly (Farhat et al., 2024). Through blended learning, students can still take advantage of in-person interactions and practical exercises in a traditional classroom environment while accessing course materials and completing projects at their leisure online. This method supports a range of preferences for learning and styles, allowing teachers to use digital technologies to offer individualized materials and support in addition to providing in-person direction and evaluation.

## 1.1 Research Questions

1. What are the characteristics of technological use in blended learning among MARA Professional College students?
2. What are the characteristics of learning preferences among MARA Professional College students?
3. What are the features of learning attitudes towards blended learning among MARA Professional College students?
4. What is the relationship between technological use and learning attitudes in blended learning among MARA Professional College students?

5. What is the relationship between students' learning preferences and learning attitudes in blended learning among MARA Professional College students?

## 2. Literature Review

### 2.1 Technology Use in Blended Learning

How students interact with and perceive learning has changed significantly because of the introduction of technology into the classroom (Hock, 2024; Nadzri, 2024). Blended learning is one such strategy that has gained popularity recently. It mixes traditional in-person training with online and digital components (Sarkar, 2023). However, there have been difficulties in implementing technology in the blended learning approach. Blended learning effectiveness depends on several elements, including students' ability and ongoing commitment to technology use (Ghandirian, 2016). Students who have difficulty utilizing the technology components of blended learning may eventually stop participating, which could result in an unsatisfactory implementation. For example, India's educational system is changing as it attempts to use new technologies to meet students' demands and overcome growth issues.

The learning process is enhanced by using virtual simulations and multimedia materials, making it more engaging for students (Halus et al., 2024). Students can participate in realistic events and experiments using virtual simulations, giving them practical experience that helps them better understand difficult ideas. Videos, animations, and interactive graphics are multimedia products that combine visual, aural, and kinaesthetic aspects to accommodate different learning styles and make learning more engaging and memorable.

### 2.2 Students' Learning Preferences in Blended Learning

Since blended learning offers a variety of teaching strategies and resources, it may accommodate a wide range of learning preferences, including kinaesthetic, visual, and auditory (Legamia & Akiate, 2020). While visual learners can interact with multimedia presentations, movies, and visual aids, auditory learners may benefit from the inclusion of audio recordings, podcasts, and interactive discussions. In contrast, kinaesthetic learners might benefit significantly from blended learning settings, including interactive learning modules, simulations, and hands-on exercises (Smith & Harvey, 2014). By providing a variety of ways for students to interact with the course material, blended learning environments can be created to meet their individual learning preferences. Giving students access to various resources—such as face-to-face encounters, online content, and print-based materials—will let them select the learning methods that work best for them (O'Keefe et al., 2014). Additionally, blended learning can improve student engagement and interaction by offering knowledge in various forms that cater to students' different learning requirements. Research has demonstrated that effectively planned blended learning can take advantage of the positive aspects of both face-to-face and online instruction while catering to each student's particular learning style (Herbert et al., 2017). Based on the earlier studies, three primary learning preferences were identified for this study namely visual, auditory, and kinesthetic.

### 2.3 Learning Attitudes in Blended Learning

According to Razali et al. (2022), the fact that students' learning styles are changing should be taken very seriously. Additionally, the capability of the learning environment to support adequate accessibility of learning is a key component in guaranteeing that students can access learning without needing to be physically present at their academic institution. Identifying

students' learning attitudes towards blended learning lessons and catering to their different needs is also essential. This change calls for incorporating cutting-edge technical tools and resources to produce a more adaptable and inclusive educational environment. To ensure that every student may reach their maximum potential, educators must also frequently adapt their teaching methods to accommodate these changing preferences for learning.

Several positives and negatives can be identified in students' attitudes toward implementing teaching and learning activities in Blended Learning. According to Tran and Nguyen (2023), many students value BL's flexibility since it helps them better manage their time and improves their educational experience. It highlights how students value blended learning's (BL) flexibility since it helps them better manage their time. This flexibility is beneficial when balancing family, job, and study obligations. Additionally, by accommodating different learning requirements and preferences, the mix of online and in-person instruction improves the overall educational experience.

However, Tran and Nguyen (2023) also noted that many students complain about feeling alone and unable to interact with peers and teachers, making learning more difficult. Furthermore, lacking engagement might hinder students' access to prompt feedback and assistance, worsening their academic performance and general wellbeing. Other than that, a more positive note on the blended learning attitude saw that many students favor blended learning over traditional or fully online formats, highlighting its significance in modern education (Huda et al., 2023). Blended learning integrates the benefits of conventional and virtual education, enhancing adaptability to diverse learning styles. This hybrid model enhances accessibility and flexibility while fostering an engaging and interactive learning environment, essential for student success in the current educational landscape.

### 2.4 Framework of the Study

Understanding how people learn differs from person to person and is essential for the student's performance. Understanding how learning occurs for various students can be quite helpful for both teachers and students. Teachers may make the most of their efforts and design classroom environments where students can succeed by knowing how learning takes place. One learning framework, transformative learning, focuses mainly on young adult and adult education. Transformative learning, or transformational learning, emphasizes that students can modify their thinking in response to new information. The researcher adopted Mezirow's Transformative Learning Theory to describe the process in this study. Mezirow's transformative learning is "an orientation which holds that the way learners interpret and reinterpret their sense experience is central to making meaning and hence learning" (Western Governers University, 2020). There are four types of learning for Mezirow's 2000 Revised Transformative Learning Diagram, which are: (1) Elaborating existing frames of reference, (2) Learning new frames of reference, (3) Transforming habits of mind, and (4) Transforming points of view.

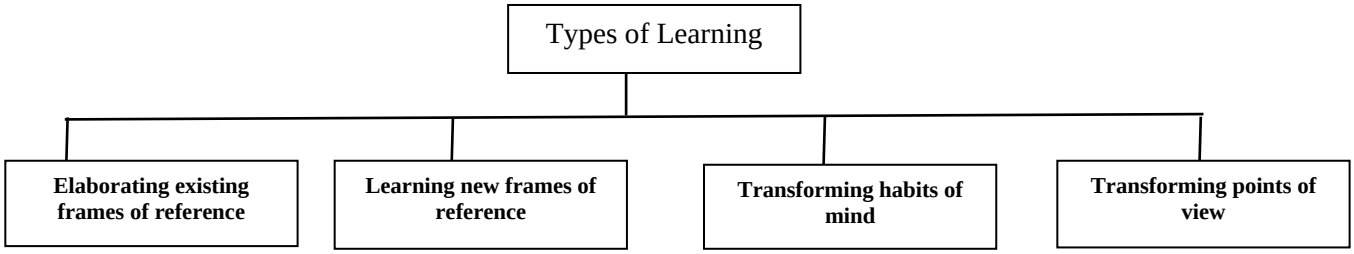

**Figure 1: Theoretical Framework of Mezirow's 2000 Revised Transformative Learning**

In this case, the theory most suitable to be adopted is transforming habits of mind through learning attitudes and learning new frames of reference with the influence of technology. The students' usual and comfort territory of learning physically with the active involvement and presence of teachers was replaced by the blended learning environment in which required more independent learning from students and typically unlike any other their usual learning environment. Thus, required them to transform their mind habits in learning. Other than that, the students' relatively new experience with technological use like online learning platforms and tools gave them new perspectives and frames of references in teaching and learning activities.

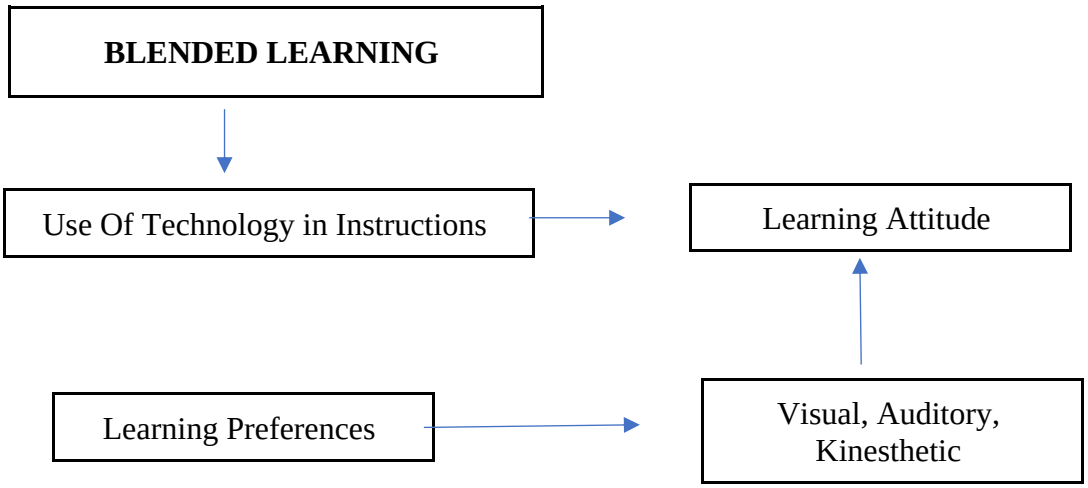


**Figure 2: Conceptual Framework of Study**

## 3. Research Method

The correlation between students' learning preferences and technological use towards learning attitudes in blended learning is investigated by adopting a quantitative technique using a cross-sectional survey research methodology. Correlation analysis was used in the research design to ascertain the correlations between the variables (Mullisi & Razali, 2024).

The survey was not subjected to Cronbach's internal consistency coefficient due to the adaptation of earlier research instruments in carrying out this research. The test was applied to the set of items proposed to measure the variables of this study. The coefficient value "applicable to attitudes, opinions, questionnaires, or scale reliability analysis" is generally distributed between 0 and 1 (Lei & Razali, 2021). It was found that the questionnaire presented in this study has an overall Cronbach's coefficient of 0.877, and its reliability is considered adequate, according to Barrios and Cosculluela, because it ranges between 0.7 and 0.95 (Suárez-López et al., 2023).

### 3.1 Instrument

The instruments are adapted from Learning Styles: Make the Student Aware by O'Brien (1989), The Effect of Technology Integration on EFL Learners' Motivation and Achievement: A Meta-Analysis. Educational Technology Research and Development by Kim and Kim

(2021), and Students' Attitudes Toward Blended Learning in EFL Context by Azamat et al. (2018). The questionnaire contains 60 questions divided into six main sections to identify the relationships of variables. Firstly, the questions are adapted from O'Brien (1989) to collect information on students' different learning preferences in class. Secondly, through adaptation from Kim and Kim (2021), the information on students' use of technology in classroom learning was able to be collected, and finally, data to collect students' learning attitudes in a blended learning classroom was identified through the adaptation of an instrument from Azamat et al (2018).

### 3.2 Sampling and Location

The study focuses on a public tertiary educational institution located in Perak. The selection of the location uses a purpose sampling strategy. This purposeful sampling method is often used in qualitative studies. Still, it is similarly effective in this quantitative study where specific criteria of students are identified to fulfill these study objectives. According to Campbell et al. (2020), the sample techniques distinctly place every study concerning data collecting and analysis reliability. Every component of rigor is addressed by the chosen purposive sampling strategy employed in each instance, which aligns with the goals, objectives, and research technique. The sampling strategy was used because of the intention to select certain groups of respondents based on the medium they have been learning through last semester. Students at the MARA Professional College were known to learn thoroughly in physical mode. However, since the college must undergo renovation, certain sections of the institute were closed down, resulting in many students learning through blended learning, 6 weeks physical and another six weeks online. The affected students are from the Diploma in International Business (DIB). They are instructed to learn on different platforms than other students in the same college (Diploma in English Communication, Diploma in Marketing, and Diploma in Business Information Technology) due to these reasons:

1. DIB is a standalone program- not a common program shared with other KPMs.
2. The total population of DIB students (230) matches the number of classes (10) affected by the renovation.

The only MARA Professional College students who underwent blended learning for the past year are the DIB students. Hence, the study using this sample can represent the other total population of KPM students who have never experienced blended learning while studying at KPM. As a result, the number of samples determined for this research is 144, based on Krejcie and Morgan (1970).

Even with the lack of KPM, students are exposed to the blended learning method during their studies there, the generalisability of the sampling is proven when the sample of students was purposely selected based on several criteria, namely an even number of students from different classes, which is 10, and students involved in the Blended Learning Approach. As a result, the samples identified were adequate in driving the research and determining the outcome of the study for the whole population of KPM students.

## 3.3 Data Collection and Analysis

Since the blended learning platform is not widely practiced in MARA Professional College, the survey could only be conducted on the selected group of students as respondents. Hence, purposive sampling was employed to ensure the data was collected within the accurate sample. The data was collected at the end of their semester after 6 weeks of physical learning activities

and another 6 weeks of physical learning activities. The students understood the concept of answering the survey questions using Google Forms, and their responses were not influenced. As mentioned, the data was collected using Google Forms and entered SPSS for descriptive and correlation analysis purposes.

### 3.4 Normality Test

The normality of the data was assessed using the Kolmogorov-Smirnov test since the sample size was more than 100 (N= 144). The Kolmogorov-Smirnov test results indicate that Learning Attitude has a *p*-value of more than 0.05, meaning that this variable is normally distributed. At the 5% significance level, the null hypothesis of normality cannot be rejected because both p-values are marginally higher than the common alpha threshold of 0.05.

The result for the variable Learning Attitude (dependent variable) is shown below:

**Table 1: Normality of the Data**

**Test of Normality**

| | Kolmogorov- Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Learning_Attitude | .074 | 144 | .051 | .983 | 144 | .067 |

a. Lilliefors Significance Correction

## 4. Result

### 4.1 Descriptive Analysis of Variables

As seen in Table 2, the mean value of technological use based on the 144 respondents is 4.00, indicating that, on average, the Tech_Use score is around 4, while the standard deviation score is 0.623. As the highest possible score a respondent can provide is 5 for each item, most of the scores recorded by respondents are high. These results indicate a high level of technological use in blended learning among MARA Professional College students.

This research tested 144 respondents to discover their learning preferences in teaching and learning activities. Three learning preferences can be identified mainly: visual, auditory, and kinaesthetic (Legamia & Akiate, 2020). Table 2 below shows the descriptive statistical results of visual, auditory, and kinaesthetic learning preferences among MARA Professional College students.

In general, the mean values recorded above-average scores for all three learning preferences. Visual learning preference has the highest mean score (3.57) among all three learning preferences, indicating that the participants believed their visual learning preference was higher. The lowest mean score recorded was auditory learning preference, with 3.30, suggesting the students' auditory learning preference was relatively medium. In terms of standard deviation scores, although the variation is similar among all three, the respondents rated their auditory learning preference with more variability compared to visual and kinaesthetic.

The data points to a marginally higher preference for visual and kinaesthetic learning preferences among the respondents than auditory learning preference. However, all preferences recorded relatively similar mean ratings, indicating the balanced variety of learning preferences among MARA Professional College students.

The mean value of the Blended Learning Attitude assessment is 3.34, and the standard deviation is 0.81. Among the items, respondents recorded a range from 1.00 to 5.00, indicating various scores within this learning attitude variable. The data on learning attitudes show a wide range of scores, with an average slightly above the midpoint, indicating a generally positive learning attitude among participants. The standard deviation and variance suggest a reasonable amount of variability in the learning attitudes, reflecting diverse responses.

Firstly, the standard deviation for technology use shows relatively consistency variability regarding the number of choices. In contrast, the most variation is shown in the data is variable Learning Attitude with 0.81, which indicates the most variation. This means some participants have highly positive attitudes, but others may have lower motivation and engagement.

**Table 2: Descriptive Statistics**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| Tech_Use | 144 | 4.00 | .623 |
| Visual_Learning_Preference | 144 | 3.57 | .600 |
| Auditory_Learning_Preference | 144 | 3.30 | .690 |
| Kinesthetic_Learning_Preference | 144 | 3.53 | .611 |
| Learning_Attitude | 144 | 3.34 | .814 |

### 4.2 Analysis of Male and Female Students Towards Blended Learning Attitude

Table 4 compares two groups of males and females regarding their learning attitudes in blended learning. The average learning attitude score for males (M = 3.53) is higher than for females (M = 3.24). According to this, men in our group generally display a more positive attitude towards learning than women.

**Table 4: Comparison of Scores Between Male and Female**

**Group Statistics**

| | Gender | N | Mean | Std. Deviation |
|---|---|---|---|---|
| Learning_Attitude | Male | 52 | 3.53 | .864 |
| | Female | 92 | 3.24 | .768 |

An independent sample t-test was conducted to test the difference in learning attitudes scores between male and female students. As depicted in Table 5, there was a significant difference in the mean score of learning attitudes in blended learning between male (M = 3.53, SD = 0.86) and female students (M= 3.24, SD = 0.77, t (10) = 2.112, $p < 0.05$). This shows that male students react more positively towards blended learning than female students. This supports the hypothesis of this study that there is a significant difference in students' blended learning attitudes between males and females of MARA Professional College.

**Table 5: Result of Independent Sample t-test**

| Gender | n | Mean | SD | t | *p* |
|---|---|---|---|---|---|
| **Male** | 52 | 3.53 | 0.86 | | |
| | | | | 2.112 | .036 |

| | | | | | |
|---|---|---|---|---|---|
| **Female** | 92 | 3.24 | 0.77 | | |

### 4.3 Analysis of Technological Use and Learning Attitudes Correlations

The value of Pearson's correlation coefficient ($r$ = 0.415) shows a moderate positive correlation between the use of technology and learning attitude in blended learning (Guildford, 1973). It can be concluded that as technology use increases, learning attitude increases and vice versa. The higher use of technology in blended learning can also result in students' positive attitudes toward blended learning. Since the probability value is less than the predetermined alpha value, thus the null hypothesis is rejected ($p$ < (0.05)). There is adequate evidence to show a significant relationship between technological use and learning attitudes in blended learning. The results show that there is a significant moderate positive relationship between technological use and learning attitudes in blended learning ($r$ = 0.415, n = 144, $p$ < .05). The findings also reveal that if students use more technology in blended learning classes, the students will also react better and positively in the class.

**Table 6: Correlation Between Technological Use and Learning Attitude Correlations**

| Technological use | | Learning_ Attitude |
|---|---|---|
| Pearson Correlation | 1 | .415** |
| Sig.(2-tailed) | | <.001 |
| N | 144 | 144 |

### 4.4 Analysis of Learning Preferences and Learning Attitudes Correlations

Based on the findings below, the three learning preferences demonstrated different correlations against learning attitudes in blended learning. Firstly, the value of Pearson's correlation coefficient ($r$ = -0.001) suggests no correlation between visual learning preference and learning attitude in blended learning. The significance value of 0.992 indicates this is also not significant regarding statistics. The lack of correlation suggests that visual learning preference does not significantly impact learning attitude in blended learning.

Secondly, the value of Pearson's correlation coefficient between auditory and learning attitude, $r$ = 0.277, shows a relatively weak positive correlation. In contrast, Pearson's correlation coefficient between kinesthetics and learning attitude, r = 0.328, represents a moderate positive correlation. Since the probability value is less than the predetermined alpha value, thus the null hypothesis is rejected ($p$ < 0.05). Adequate evidence exists to demonstrate there is a significant relationship between both auditory and kinaesthetic learning preferences and blended learning attitudes. In contrast, the relationship between visual learning preference and learning attitude is insignificant.

The relationships between learning preferences, technological use, and learning attitudes in blended learning were investigated using the Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions. The findings show significant weak to moderate positive relationships between auditory, kinaesthetic, and blended learning attitudes. Students with auditory or kinaesthetic learning preferences will react positively to blended learning activities. In contrast, students with visual learning preferences do not correlate with how they respond in blended learning classes.

**Table 7: Correlation Between Learning Preferences and Learning Attitude**

| | | Visual Learning Preference | Auditory Learning Preference | Kinesthetic Learning Preference | Learning Attitude |
|---|---|---|---|---|---|
| Visual Learning Preference | Pearson Correlation | 1 | .581** | .498** | -.001 |
| | Sig. (2-tailed) | | < .001 | < .001 | .992 |
| | N | 144 | 144 | 144 | 144 |
| Auditory_ Learning_ Preference | Pearson Correlation | .581** | 1 | .616** | .277** |
| | Sig. (2-tailed) | < .001 | | < .001 | < .001 |
| | N | 144 | 144 | 144 | 144 |
| Kinesthetic_ Learning_ Preference | Pearson Correlation | .498** | .616** | 1 | .328** |
| | Sig. (2-tailed) | < .001 | < .001 | | < .001 |
| | N | 144 | 144 | 144 | 144 |
| Learning_ Attitude | Pearson Correlation | -.001 | .277** | .328** | 1 |
| | Sig. (2-tailed) | .992 | < .001 | < .001 | |
| | N | 144 | 144 | 144 | 144 |

**. Correlation is significant at the 0.01 level (2-tailed)

## 5. Discussion

In this study, we formulated and discussed students' learning attitudes in blended learning according to different learning preferences and the influence of technological use. The study identified authentic feedback and responses from students in the following aspects: learning preferences, blended learning experiences, blended learning technological use, and blended learning attitudes. These findings are valuable because they provide evidence of how students react during blended learning and help provide concrete directions for future investigations of students' learning attitudes influenced by different factors, as mentioned by Ince (2023).

As mentioned earlier, several questions were posed to study findings of the connections between technological use and students' learning preferences towards learning attitudes displayed by students in blended learning sessions. According to the analysis of the relationship between students' technological use and learning attitudes in blended learning, the outcome of the study showed a moderate positive correlation between technological use and learning attitudes, indicating that the higher use of technology in blended learning can result in students' positive attitudes in blended learning as well. This corroborates well with previous research by Radovan and Makovec (2024), in which technology-enabled collaborative learning significantly boosted students' satisfaction and participation. They also stated that technology integration in blended learning settings is linked to better learning outcomes and positive student attitudes. The positive findings of this study have significant implications for teaching methods. Academic institutions and teachers must consider integrating adequate technology influence in blended learning to elicit students' positive attitudes during the lessons.

The other issue studied was discovering the relationship between students' learning preferences and their attitudes in blended learning lessons. Three main learning preferences

were tested to determine their correlation with students' blended learning attitudes. Among all three learning preferences, kinesthetics offers the most positive correlation with a moderate level of positivity towards learning attitudes compared to auditory (weak positive) and visual (no correlation). It seemed that kinaesthetic students would react positively to blended learning. This almost contrasts with the early transition to e-learning among kinaesthetic learners, especially during the COVID-19 pandemic, with various challenges they face (Ameer & Parveen, 2023). This proves the learning environment should be more interactive and engaging to suit the types of learners and positively impact learning.

According to research, personal qualities like academic self-efficacy and self-regulated learning ability are critical in promoting engagement, underscoring the significance of customizing learning experiences to meet the needs of each individual (Wang & Lin, 2024). This highlights the importance of tailoring the learning experience, including both physical and online, based on students' unique learning preferences. They also stated that effective teaching presence increases students' academic self-efficacy, increasing engagement and making the instructor's role crucial. The teachers' role in motivating students can impact students' positive learning attitudes (Ince, 2023).

Nevertheless, there are some limitations when conducting this study. The first limitation is the lack of exposure to blended learning activities among MARA Professional College students. As mentioned previously, MARA, a government education agency, has practiced a policy of 100% physical teaching and learning sessions for some of its educational programs. Due to that constraint, the researcher must identify respondents through a purposive sampling strategy based on certain respondents' criteria for answering the questionnaire. As a result, the sample is limited to only one study program conveniently affected by the college renovation for the research to take place. Another limitation is instructional design. Designing effective blended learning teaching and learning activities may prove to be a significant effort due to the lack of experience among lecturers in conducting a blended learning approach. The researcher briefed lecturers on preparing blended learning activities for students. Other than that, the results of this study provide different ideas for conducting more studies, such as identifying which blended learning activities can increase students' motivation. It is believed that a more structured and interesting method of teaching blended learning can directly impact students' achievement.

Further research can certainly be employed regarding the practical blended learning tools to be identified according to the different learning preferences. Gaps can be filled in to ensure effective and impactful learning experiences occur among students either in the physical environment or online learning platform.

## 6. Conclusion

This study examined the influence of students' learning preferences and their technological use in blended learning on their attitudes when having a blended learning approach in their learning activities, demonstrating the need to have access to technology to have a practical impact on student's motivation and interest in learning through the combination of physical and online learning. This was proven by the correlation results of technological use and learning attitudes, which showed a significant positive correlation between those two variables. When schools offer better access to technology in the classroom, students will fare better in blended learning lessons. In addition, the influence of learning preferences on students' learning attitudes in blended learning failed to display strong positive correlations. Instead, visuals have little influence on learning attitudes, and the other learning preferences (auditory and kinaesthetic) showed minimal positive relationships and moderate positive

correlations, respectively. Again, lecturers' experience in conducting a blended learning approach might play a crucial role in increasing students' positive attitudes in lessons, and future study on that point would play a huge part in identifying the gap.

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# FROM FRAMEWORK TO CLASSROOM: HOW MALAYSIAN ESL INSTRUCTORS NAVIGATE SOCIOLINGUISTIC COMPETENCE THROUGH CEFR

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## ABSTRACT

The development of students' sociolinguistic competence has gained greater attention with the introduction of the Common European Framework of Reference for Languages (CEFR) into the Malaysian education system, which encourages a shift towards communicative competence. This study explores how pre-degree ESL instructors in Malaysian universities navigate the teaching of sociolinguistic competence in alignment with the CEFR. It focuses on their beliefs about teaching sociolinguistic competence, their acceptance of the CEFR, and how they align their classroom practices with the framework. The findings reveal that instructors generally hold positive views about both sociolinguistic competence and the CEFR, although some concerns remain—particularly regarding the lack of awareness and practical guidance. Instructors reported using meaningful and authentic materials, being mindful of students' backgrounds and needs, and allowing flexibility in classroom interactions. It is hoped that future research will lead to the development of clearer guidelines and training for instructors to support the effective implementation of CEFR-aligned sociolinguistic instruction.

**Keywords:** communicative competence, ESL learners, higher education

## 1. Introduction

Communicative Language Teaching (CLT) was developed as an approach to language instruction that emphasizes interactive teaching methods between teachers and students to cultivate learners who can use the language effectively in communication (Hymes, 1972). Dell Hymes (1972) expanded on Chomsky's (1965) concept of linguistic competence by introducing the notion of communicative competence, which includes the ability to understand and use language appropriately in various social situations. This means that beyond just speaking accurately, a learner should be able to navigate different contexts with suitable language use. Hymes' idea was further elaborated by scholars such as Canale and Swain (1980) and Canale (1983), who identified four key dimensions of communicative competence: grammatical, discourse, sociolinguistic, and strategic competence. These dimensions are widely utilized in research on language teaching and learning. Grammatical competence pertains to the accuracy of language use, while sociolinguistic, discourse, and strategic competences focus on adapting language use to different contexts. CLT aims to develop learners who can effectively use language in real-life situations beyond the classroom (Savignon, 2018), which is crucial for second and foreign language learners who may struggle with practical communication.

In recent years, sociolinguistic competence has garnered increased attention in second and foreign language teaching, as educators and researchers recognize the importance of teaching learners how to use language appropriately in various social contexts (Taguchi, 2011; Youn & Kormos, 2022). While foundational work by Halliday (1971) highlighted that sociolinguistic competence involves not only choosing the right words but also understanding their intended meanings, contemporary studies emphasize the growing need to develop learners' ability to interpret and produce contextually appropriate language. Sociolinguistic competence helps learners navigate both the appropriateness of meaning—related to speech acts—and the appropriateness of form, or how language is expressed (Canale & Swain, 1980; Canale, 1983). It supports effective communication by prompting learners to consider their interlocutors, the goals of the interaction, and cultural expectations (Taguchi, 2018). However, many second and foreign language learners continue to face challenges with sociolinguistic appropriateness, particularly due to limited access to authentic language use in classroom settings (Liu, 2008; Youn & Kormos, 2022).

The teaching of sociolinguistic competence is vital as even proficiency is not an appropriate benchmark for the language learners' ability to communicate appropriately in different contexts Zarrinabadi, et al., (2021). In the Malaysian landscape, it is hoped that sociolinguistic competence is given emphasis with the implementation of the Common European Framework of Reference for Languages (CEFR) in the teaching and learning of English in the country. However, even the implementation of the framework itself needs to be investigated, as some concerns regarding the alignment to the framework in Malaysia due to the lack of guidance and materials that are localised for Malaysian teachers and students (Foley, 2019; Nur

Ashiquin, et. al, 2021). Hence, this study intends to understand how ESL instructors align the teaching of sociolinguistic competence to the CEFR. In order to provide a clear and in-depth exploration of the topic, the instructors' beliefs about the teaching of the competence and their acceptance of the CEFR need to be investigated as they may have an influence on how the instructors choose to align their lessons on sociolinguistic competence to the CEFR.

### 1.1 Research Questions

1. What are pre-degree ESL instructors' beliefs about the teaching of sociolinguistic competence in the classroom?
2. How is the acceptance of CEFR in Malaysian higher education institutions among pre-degree ESL instructors?
3. How do these pre-degree ESL instructors align lessons on sociolinguistic competence to the CEFR?

## 2. Literature Review

### 2.1. The Teaching of English in Malaysia: Towards Communicatively Competent Learners

To enhance the communicative competence of young Malaysians, the Ministry of Education has introduced several updates to the English language curriculum. They replaced the Integrated English Language Syllabus for Primary and Secondary Schools (KBSR & KBSM) with the Standard English Language Syllabus for Primary and Secondary Schools (KSSR and KSSM), aiming to implement better Communicative Language Teaching (CLT) (Liyana, Hamid, & Renshaw, 2019). The previous KBSM syllabus was criticized for emphasizing reading, writing, and grammar at the expense of communicative skills, focusing too much on examination preparation (Fauziah & Fauzee, 2017). Teachers encountered difficulties adapting to learner-centered methods due to large class sizes and challenges in updating their activities to align with the new curriculum (Hardman & Norhaslynda, 2014). Additionally, there were concerns about English threatening the status of Malay and the disparity in English proficiency between urban and rural areas, with some rural Malaysians feeling demotivated as they saw little practical use for English (Zuraidah, 2014).

The Ministry of Education's Roadmap (2015) outlined necessary reforms to address these challenges and further develop communicative competence through English language education. Hazita (2016) suggested that the Roadmap could improve English teaching and address related issues, helping to align Malaysian learners' proficiency with the Common European Framework of Reference for Languages (CEFR) adapted from the Council of Europe (2001). The Roadmap encompasses a broad range of educational stages, from preschool to tertiary education and teacher training, focusing on curriculum, teaching methods, and assessment.

In contrast to schools, English language programs in Malaysian tertiary institutions lack standardization and established guidelines (Ministry of Education, 2015). Variations in course outcomes and institutional goals contribute to this lack of uniformity. Although diverse course content and assessments may offer benefits, there are concerns about whether these programs adequately prepare students for real-life communication (Liyana, Hamid, & Renshaw, 2019). This variation is particularly critical for understanding how instructors interpret and implement key language components such as sociolinguistic competence in the absence of

centralized guidance. This gap informed the selection of interview-based qualitative inquiry for this study, allowing for exploration into ESL instructors' personal approaches to teaching sociolinguistic competence. Previous research has highlighted several issues with English language teaching prior to CEFR implementation, including insufficient contact hours, non-standardized teacher proficiency levels, student difficulties with learner-centered approaches, and subpar teaching materials (Nurjanah & Siew, 2013; Ministry of Education, 2015). The introduction of the CEFR in Malaysia aims to elevate educational standards to an international level and provide a benchmark for evaluating graduates' proficiency (Hazita, 2016). Employers face challenges in assessing graduates due to the absence of internationally recognized benchmarks, and the Ministry of Education hopes that CEFR implementation will help address these issues.

### 2.2. Aligning English Language Instruction at Malaysian Tertiary Institutions with the CEFR for Enhancing Sociolinguistic Competence

The Common European Framework of Reference for Languages (CEFR) was created to help language learners gauge their proficiency and skills (North, 2007). It offers a clear framework for both teachers and students on how to acquire and assess language abilities through communicative activities (Council of Europe, 2001). The CEFR outlines three main competencies: linguistic, pragmatic, and sociolinguistic. Sociolinguistic competence within the CEFR encompasses understanding "linguistic markers of social relations, politeness conventions, register differences, and dialect and accent" (Council of Europe, 2018, p. 137).

Since its early development, there has been debate about how to integrate and assess sociolinguistic competence in the classroom. Issues include its elusive definition within proficiency constructs, imprecise descriptors, and inconsistent teacher responses (North, 2007). To address these issues, the Companion Volume with New Descriptors for the CEFR was introduced (Council of Europe, 2018). Initially, terms like "native speakers" and "nativelike performance" were used, but these were revised to "speakers of the target language" or "proficient speakers" concerning sociolinguistic competence. Savignon (2018) also notes that sociolinguistic competence doesn't require native-like usage but rather the appropriate application of language in various social contexts. The CEFR emphasizes the importance of cultural and societal awareness in language learning, encouraging learners to understand and engage with their interlocutors' intentions and cultural contexts (Council of Europe, 2018). One reason for the CEFR's widespread adoption is its focus on equipping learners to communicate effectively in real-life situations (Foley, 2019). While sociolinguistic competence is crucial, it often takes a backseat to linguistic competence in second and foreign language instruction (Council of Europe, 2001).

In Malaysia, sociolinguistic competence is sometimes overshadowed by linguistic competence in English language classrooms. Normazidah, Koo, and Hazita (2012) have noted that Malaysian classrooms tend to emphasize exam-focused aspects of language rather than those that enhance real-world communication. Given this imbalance, the current study employs semi-structured interviews to explore instructors' perspectives and practices in realigning their teaching approaches with CEFR's sociolinguistic goals. To address this, the Ministry of Education introduced a three-phase plan to align the English curriculum with the CEFR (Ministry of Education, 2015). The first phase focused on teacher training, the second on aligning assessments, syllabi, and curricula to the CEFR, and the third on evaluating and revising these changes. The Ministry aims to stress sociolinguistic aspects to better prepare students for effective communication outside the classroom, in line with CEFR

recommendations (Council of Europe, 2001).

However, the CEFR should not be seen as a standalone document; localized guidelines and materials are needed to support its implementation (Moser, 2015). Malaysia lacks a tailored version of the CEFR, unlike countries such as Japan, Thailand, and China (Foley, 2019). The Ministry of Education (2015) intends to evaluate how best to adapt the CEFR for Malaysian classrooms after initial implementation. This absence of a localized framework could pose challenges for teachers. Moser (2015) reports that some educators struggle with applying the competence-based framework due to a lack of examples or guidance. The use of qualitative interviews in this study thus allows for a contextualized understanding of how Malaysian ESL instructors interpret and adapt CEFR descriptors, especially sociolinguistic ones, within their unique teaching environments. The shift from a knowledge-based curriculum to one focused on competence may lead to confusion and misinterpretation, particularly when the CEFR is not standardized across institutions. This inconsistency raises concerns about how effectively teachers' skills and students' communicative abilities can be assessed across different educational settings.

### 2.3. Teaching Sociolinguistic Competence in Higher Education Institutions

The mode of instruction and communication in tertiary institutions differs significantly from that in schools, which can be daunting for some students. Adapting to the necessity of using English is another challenge they must face. Sociolinguistic competence in English has become increasingly crucial, especially with the internationalization of higher education. As noted by Altbach (2004), universities worldwide are pursuing internationalization to attract students from various countries. In Malaysia, English is rapidly becoming the primary medium of instruction and communication due to the influx of international students. Both local and foreign students must use English effectively for academic discussions and presentations. However, differences in backgrounds, values, and norms can lead to miscommunications and misunderstandings, affecting how they use and perceive the language (Ng & Nyland, 2017). A lack of sociolinguistic competence can leave students unprepared for interacting in diverse social contexts. A significant issue hindering Malaysian students' development of sociolinguistic competence is its insufficient focus in English classrooms (Foley, 2019). This is partly due to Malaysia's exam-oriented culture; however, assessing sociolinguistic competence through exams does not address the need for practical, real-life application.

To enhance sociolinguistic competence for effective academic and social communication, steps must be taken. The language classroom can serve as a supportive environment for acquiring this competence. Yassin and Norizan (2018) found that Malaysian students from the same class often use similar communication strategies despite their diverse backgrounds, suggesting that classroom language use significantly influences their communicative practices. Furthermore, Norma, Siti Jamilah, and Ahmad Affendi (2016) highlighted how Eastern values impact Malay learners' sociolinguistic choices. Unlike the individualistic nature of native English speakers, Malay learners often prioritize community and group needs, affecting their use of language. Native speakers' sociolinguistic norms may not always align with Malaysian learners' practices (Muthusamy & Farashaiyan, 2017). Therefore, teachers play a crucial role in developing Malaysian learners' sociolinguistic competence. Exposure to native speakers through media might not provide an adequate understanding of sociolinguistic variations, especially within a local context. These pedagogical and cultural insights provided the rationale for selecting semi-structured interviews as the data collection method in this

study, allowing ESL instructors to share their beliefs and practices in fostering sociolinguistic competence in diverse classroom contexts. Teachers need to present not only native speakers' sociolinguistic variations but also discuss cultural differences between native speakers and local learners. Researchers have suggested that Malaysian learners' limited exposure to sociolinguistic variations in the classroom contributes to their lack of competence (Farashaiyan & Muthusamy, 2016).

Several studies (Maryam & Wu, 2012; Farashaiyan & Tan, 2012; Norma, Siti Jamilah, & Ahmad Affendi, 2016) have investigated sociolinguistic competence among Malaysian university students. Maryam and Wu (2012) found that both Malaysian and Chinese students tend to form thoughts in their first language before translating them into English, with their responses heavily influenced by their native cultures. Farashaiyan and Tan (2012) revealed that Malaysian and Iranian students both include titles when expressing gratitude, a practice influenced by their native cultures. Malaysian students also used fewer expressions of gratitude compared to their Iranian counterparts, possibly due to limited exposure to language variations. Norma, Siti Jamilah, and Ahmad Affendi (2016) found that Malaysian students use fewer direct refusal strategies, focusing more on preserving feelings, unlike native English speakers who might adopt more direct approaches. This difference may stem from the Eastern cultural emphasis on group harmony compared to the individualistic nature of Western cultures (Asmah, 2002). These findings indicate that learners' sociolinguistic competence is influenced by their cultural backgrounds and norms.

Teachers must guide students in developing sociolinguistic competence, helping them understand and navigate the differences between their own cultural norms and those of English-speaking contexts. Teachers should not only highlight native speakers' sociolinguistic variations but also consider the Malaysian learners' backgrounds (Norma, Siti Jamilah, & Ahmad Affendi, 2016). It's essential to recognize that variations in Malaysian students' language use, while different from native speakers, are not necessarily inappropriate. Sociolinguistic competence involves understanding and using language appropriately in various social contexts, not just mimicking native speakers. Teachers play a vital role in this process by contextualizing language instruction to fit local norms and values. Farashaiyan and Muthusamy (2016) stress the importance of adapting English language instruction to the Malaysian context.

Most local studies on sociolinguistic competence focus on speech acts (Farashaiyan & Tan, 2012; Maryam & Wu, 2012; Marlyna & Salmiza, 2013; Norma, Siti Jamilah, & Ahmad Affendi, 2016; Phanithira & Melor, 2017; Marlyna & Nurul Syafawani, 2018), possibly because they are more observable and measurable than other aspects of sociolinguistic competence. Marlyna and Nurul Syafawani (2018) chose to study speech acts due to their frequent issues among Malaysian students, influenced by cultural factors. Marlyna and Salmiza (2013) noted that speech acts often receive more research attention due to their face-threatening nature, which can be particularly uncomfortable for Asians. To foster communicative competence, teachers need to focus not only on speech acts but also on other aspects of sociolinguistic competence. Awareness of their own language use and its impact on students is crucial. Phanithira and Melor (2017) found that students used more polite language with teachers compared to their peers, while teachers used more direct language. This highlights the need for teachers to be mindful of sociolinguistic variations and their influence on student communication.

The integration of the Common European Framework of Reference for Languages (CEFR)

into Malaysia's ESL curriculum has prompted a focus on sociolinguistic competence, highlighting both opportunities and challenges. Studies such as Abd Rahman et al. (2022) demonstrate how ESL instructors actively engage students in co-constructing meaning and use explicit teaching methods to foster sociolinguistic competence. However, Nii and Yunus (2022) note that while teachers generally view CEFR positively, they express concerns about the availability of resources and adequate training to effectively implement the framework. Additionally, Majid and Matore (2024) emphasize the role of language assessment literacy (LAL) in supporting CEFR's integration, pointing to gaps among ESL teachers that may hinder the accurate assessment of sociolinguistic competence. Collectively, these studies underscore the importance of sociolinguistic competence within the CEFR framework, stressing the need for professional development, resource adaptation, and innovative teaching approaches to effectively integrate sociolinguistics into ESL education in Malaysia.

To conclude, the Malaysian education system has been reforming English language instruction to enhance communicative competence, with a focus on real-life communication rather than just exam preparation. The Ministry of Education introduced a new curriculum and the CEFR to improve English proficiency. However, challenges remain in adapting to learner-centered methods, addressing rural-urban disparities, and incorporating sociolinguistic competence, which is often overshadowed by linguistic focus. Sociolinguistic competence, emphasizing appropriate language use in social contexts, is crucial for effective communication, especially in higher education, where internationalization increases the need for cross-cultural understanding. In Malaysian tertiary institutions, English language programs lack standardization, and students' cultural backgrounds influence their sociolinguistic practices. Teachers play a pivotal role in helping students navigate these differences and develop sociolinguistic skills, ensuring that language use aligns with both local and global norms. The shift towards competence-based teaching, however, requires contextual adaptation to the Malaysian environment.

## 3. Methodology

### 3.1. Research Design

A qualitative study has been conducted with pre-degree university instructors teaching English language proficiency courses in understanding their beliefs about the teaching of sociolinguistic competence, the acceptance of CEFR in Malaysian higher education institutions among pre-degree ESL instructors, and how these pre-degree ESL instructors align their lessons on sociolinguistic competence to the CEFR.

A case study approach was chosen, as an in-depth understanding of the issue in the existing context is imperative Creswell and Poth (2018), seeing as CEFR has quite recently been integrated into the teaching of English in education institutions in Malaysia. Moreover, as literature has shown, sociolinguistic competence is vital to be developed among Malaysian students and more studies need to be conducted in this area. Semi-structured interviews were conducted as the method for data collection, providing the opportunity for in-depth and rigorous exploration of the study, while maintaining consistency across core themes relevant to the research questions. The instructors were interviewed until a point of saturation, and data was sufficient.

### 3.2. Research Participants

Participants in this study were selected using purposive sampling, focusing on individuals who could provide relevant and rich information about the phenomenon under investigation. Among the selection criteria are (1) Malaysian, (2) pre-degree English language instructors, (3) teaching in university, and (4) teaching English language proficiency course. The choice of instructors teaching pre-degree students was because they are at the early stages of their university experience. Students making the transition to university often encounter difficulties adjusting to both the physical and social aspects of university life, particularly in relation to teaching and learning (Sheard et al., 2003). Hence, students in this level of study would be most appropriate for the introduction and teaching of sociolinguistic competence, which would allow them to communicate with others in a variety of contexts.

Malaysian ESL instructors from local public universities that align the curriculum of their English language proficiency courses to the CEFR were identified, and were contacted via email. A total of 10 ESL instructors were initially invited to participate in the study; however, only three instructors were available and agreed to be interviewed. Data collection continued until thematic saturation was reached after the third interview, at which point no additional participants were recruited.

The small sample size of three instructors is a recognised limitation of this study and may restrict the generalisability of the findings to a broader population of ESL instructors. As a qualitative case study, the aim was not to produce generalisable results but to offer in-depth insights into individual instructors' perspectives and practices regarding CEFR alignment and the teaching of sociolinguistic competence. The title and scope of the article have been carefully considered to reflect this exploratory and context-specific focus.

### 3.3. Data Collection and Analysis

This study mainly investigates how ESL instructors align their lessons on sociolinguistic competence to the CEFR. In addressing the first research question, the ESL instructors were asked questions regarding their beliefs about the teaching of sociolinguistic competence, which is vital in understanding their choices in how they teach sociolinguistic competence in the language classroom. As for the second research question regarding the acceptance of CEFR, the ESL instructors were asked about their exposure to the CEFR and how they received this new framework. The instructors' acceptance of CEFR can have a significant influence on how they align with the framework when delivering lessons on sociolinguistic competence. Finally, the third research question is addressed as the ESL instructors answer questions on their practices in teaching sociolinguistics competence whilst aligning to the CEFR.

The data collected through semi-structured interviews were analysed using thematic analysis as outlined by Braun and Clarke (2006), which allows for the identification, analysis, and interpretation of patterns of meaning within qualitative data. The analysis followed a six-phase process: familiarisation with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. All interviews were transcribed verbatim and uploaded into NVivo 12 software to assist in organising, coding, and managing the data systematically.

Initial codes were developed inductively from the data, while also being informed by relevant literature on sociolinguistic competence and CEFR alignment. These codes were then grouped into broader categories, from which subthemes and overarching themes were refined through iterative review and peer debriefing. To ensure trustworthiness, several strategies were

employed: credibility was enhanced through member checking, where participants were given the opportunity to verify their interview transcripts and interpretations; transferability was supported by providing rich, thick descriptions of the context and participants; dependability was ensured by maintaining an audit trail of all analytical decisions and procedures; and confirmability was addressed through reflexive journaling to minimise researcher bias and maintain transparency throughout the analysis.

The themes were compared and reviewed to ensure that they were truly reflective of the ESL instructors' responses and addressed the research questions in providing an in-depth understanding of the current landscape in terms of aligning to the CEFR in developing students' sociolinguistic competence.

### 3.4. Ethical Considerations

Ethical approval for the study was obtained from the JKEUPM at the researcher's institution, ensuring that all research procedures complied with institutional and national ethical standards for research involving human participants.

All participants were provided with an informed consent form outlining the purpose of the study, their right to withdraw at any time, the voluntary nature of participation, and measures taken to ensure confidentiality and data protection. Pseudonyms were assigned to all participants to protect their identities, and any potentially identifying information was removed from transcripts and publications. Participants were assured that their responses would be used solely for academic purposes and that no personal or professional repercussions would arise from their participation.

## 4. Findings and Discussion

The three ESL instructors chosen for this study have taught for less than 5 years at their respective institutions. Instructor A teaches diploma-level students, whereas Instructor B and C teach foundation-level students. In terms of their students' field of study, Instructor A and C teach students from a variety of study programmes, while Instructor B teaches students from only one study programme. They are all teaching English language proficiency courses under the same higher education institution, but at different locations.

The sections below are organised according to the research questions.

### 4.1. RQ1: Beliefs about the Teaching of Sociolinguistic Competence in the Classroom

Based on the literature discussed in the previous sections, it can be deduced that the teaching of sociolinguistic competence in Malaysian classrooms needs to be studied further. Moreover, instructors' beliefs specifically need to be studied as it is not the common dimension of communicative competence which is emphasized in Malaysian English language classrooms. This is echoed by Instructor B, who feels that the teaching of language is about fluency, and that students will not see the significance of developing their sociolinguistic competence because it is not graded.

*"Especially because we evaluate students based on that. Remember that we give them their marks based on their fluency and their language skill, rather than their ability to use language in appropriate context. It's important, but we don't grade them based on that." (Instructor B)*

Savignon (2018) has also discussed the lack of emphasis on appropriacy and communicative skills compared to fluency and accuracy in studies related to the teaching and learning of English. With regards to this, instructors such as Instructor A and C feel that the development of students' sociolinguistic competence is vital, as it allows students to explore politeness, different contexts and audiences, as well as sensitivity when communicating with others.

*"... according to the cultural need, according to the purpose, at the moment when they are communicating, so I think it is good to teach the students about what are the polite ways to talk, I mean in approaching different audience" (Instructor A)*

Similarly, a study by Al-Sallal and Ahmed (2022) had discussed the importance of understanding culture and background among learners of English as a second and foreign language especially to avoid misunderstandings and miscommunications. In fact, Instructor C goes on to add that having sociolinguistic competence allows language learners to be more sensitive of current issues occurring in the society to avoid from offending others due to ignorance and appropriateness in communicating with others.

With regards to their concerns on teaching the competence, Instructor B and C highlight that sociolinguistic competence is a complex concept for them to teach to their ESL learners. Inatructor C explains that he would introduce sociolinguistic competence differently to students with varying proficiency levels.

*"...depends on my audience. Like, for example, if I'm teaching, (students with higher proficiency), I can go all out. But, like, when I'm teaching, (less proficient students), for example. I can't go into it that way. They won't even understand. So I maybe embed it within my courses" (Instructor C)*

Zarrinabadi, et al., (2021) discussed the different studies that investigated the relationship between proficiency level and sociolinguistic competence. It was revealed that at times the students' level of proficiency may have an impact on the development of their sociolinguistic competence perhaps due to their lack of linguistic ability to express appropriate language use.

It can be clearly seen that ESL instructors in higher education institutions have differing views of the teaching of sociolinguistic competence. Hence, this needs to be taken into consideration before even delving into the idea of aligning to the CEFR for the development of sociolinguistic competence in the ESL classroom. How teachers view sociolinguistic competence itself, and how students perceive this dimension of communicative competence can have a vital role in whether or not it is given emphasis in the classroom.

### 4.2. RQ2: The Acceptance of CEFR among Pre-Degree ESL Instructors

#### 4.2.1 Exposure to the framework

The second research question was raised due to the fact that the CEFR has been introduced to the Malaysian education system, but there has yet to be a thorough discussion of the acceptance of ESL instructors with regards to aligning the current syllabus to the CEFR. Though The Roadmap includes the higher education institutions in its plan, it could be said that aligning to the CEFR is not an easy feat as there is no standardisation among higher education institutions in the country unlike secondary and primary public schools (Ministry of Education, 2015).

Instructor B has never been exposed to CEFR by his institution, while Instructor A said that

no specific briefing or workshop was given in terms of aligning to CEFR, but she did attend a workshop for new courses that did mention aligning to the CEFR levels. As for Instructor C, his institution would often conduct workshops in aligning their courses and programme to the CEFR.

*"They would do a special it's like it's a 2-day workshop. The first day is on CEFR only. And we have some of our lectures like Dr. YYY, for example, which is a pro. So these lecturers will just come in and talk about it. And I remember, because (our department), they do have a comprehensive seminar on it." (Instructor C)*

The jarring difference in the exposure that is given to the instructors on CEFR by their institution can definitely have an impact on their acceptance of the framework. As Instructor B mentioned, aligning to the CEFR requires for the institution administrators to play a vital role in giving exposure.

*"I think it is possible for us to adapt CEFR in our Malaysian higher education curriculum. It's just the educators, the lecturers need to be more exposed. Because if we don't know about CEFR, there's no way we are going to implement it." (Instructor B)*

English language teachers in Malaysian schools are ready to accept the implementation of the CEFR in Malaysian schools, however there are concerns regarding having sufficient materials (Nur Ashiquin, et al., 2021). This could be because of the lack of standardization for higher education curriculum compared to secondary school curriculum, where alignment is standardized and clear.

It could be said that the acceptance of the framework among ESL instructors in Malaysian higher education institutions is very much influenced by the lack of exposure to it. Hence, more exposure needs to be given by the ministry and the university administrators to English language instructors so that appropriate alignment and integration of the CEFR can be done.

### 4.2.2 Self-learning of the framework

Due to their exposure or lack of exposure, all three instructors have all embarked on their own self-learning journeys in terms of getting more information on the framework and how to align it to the current curriculum. Instructor A decided to search for information on the CEFR because she became interested in it when it was first introduced in the country.

*"I have read about CEFR before when it first, it was first implemented in Malaysia, when there are so many people talking about CEFR. I become interested, and I tried to search for it." (Instructor A)*

The internet becomes the main source of information for these instructors, including Instructor B who has expressed this, mentioning "That is the only, my only source of info on CEFR, from my own research on the internet." This is a matter of concern because it would seem as though these instructors do not have a proper guideline that they can refer to for the implementation of the CEFR in teaching of English in higher education institutions (Foley, 2019).

Instructor C, despite having been introduced to the CEFR through workshops, also had to go through his own self-learning process when he had to assess the students' English exit tests that are aligned to the CEFR.

*"Especially when, I had to do that because when we first had to assess the English exit test, that was when I was introduced to CEFR. It was the first time." (Instructor C)*

Even though workshops are conducted, it is still vital to recognise that the alignment to the CEFR in terms of English language assessment requires a deeper understanding of the framework. In fact, the Council of Europe had introduced the Companion Volume to providing clearer descriptors so that appropriate assessments can be planned for the curriculum development.

The fact that ESL instructors are learning about the CEFR on their own is good, but it is important that administrators provide the proper training on the CEFR so that the instructors are more inclined to accept the framework and align to it.

### 4.2.3 The reality of CEFR-alignment in Malaysia

Ideally, we would expect that the alignment of the CEFR to the teaching and learning of English in higher education institutions in Malaysia would go smoothly as planned. Unfortunately, this is not the experience of these three ESL instructors. Instructor A pointed out that the ministry has aligned to the CEFR, identifying B1 as the level that Form 5 students should be when they leave school.

*"...B1 by the end of Form 5. But unfortunately, when the students come to (this institution) – I can only speak based on my experience teaching diploma students, I can see that they don't really reach B1 level" (Instructor A)*

For diploma students, it can be seen that they are not B1 level as planned by the ministry. This could be due to a number of factors, but how ESL instructors manage this is what Instructor A sees as most important. This coincides with a study conducted on the curriculum for the teaching of English in a higher education institution in Malaysia that has been aligned to the CEFR. It was found that the students' current level of proficiency did not match the CEFR level they were expected to be in, and this was echoed by employers who expected the graduates to achieve a certain level pf proficiency (Che Musa, et al., 2021). Similarly, in this study, Instructor A faced the need to refer to the CEFR level which is below the level that is expected of the students. Hence, materials and tasks needed to be modified accordingly.

Having a different perspective, Instructor B states that for him, lessons are not focused on CEFR as a framework, but on students' needs. He feels that having knowledge on CEFR has not affected the way he teaches, rather he prefers to align the lesson to students' needs.

*"I simply teach based on the students' needs. You know, because it depends on their needs ... Personally for me, the knowledge about different levels of CEFR, umm did not change my teaching style" (Instructor B)*

This perspective is also important to discuss, seeing as ESL instructors who feel this way might not be inclined to learn more about CEFR as they do not see the importance of aligning to it. This is the reality from not only the eyes of Instructor B, but possibly many other ESL instructors. Though the CEFR has been introduced in Malaysia and most institutions are aligning their curriculum towards it, perhaps some apprehension stems from the lack of exposure to the framework. This goes back to the first theme that was found on the lack of exposure of ESL instructors to the CEFR.

Though CEFR alignment may be seen in a positive light, it is vital to also note that the descriptors might not be realistically assigned to the students based on their education level. Besides that, some ESL instructors may feel that aligning to the CEFR is not necessary as they can proceed with the current way they are evaluating and teaching students.

#### 4.2.4 CEFR as a measure for assessment

The CEFR is also used for planning and designing assessments in English language classrooms. Instructor C feels that the CEFR provides a good measure for assessment as it illustrates clear descriptors of each level, and it focuses more on the ability to communicate rather than mainly on accuracy.

*"What does a band 6 mean? What does a band 4 mean? … MUET is more academic in a way. It's more on accuracy" (Instructor C)*

When assessing students' skills in communicating in English, Instructor C feels that more emphasis should be given to the students' ability to convey meaning and interact effectively, rather than accuracy. Moreover, comparing CEFR for assessment to the Malaysian University English Test, Instructor C finds that the CEFR provides clearer descriptors for each level which assists in not only assessing the students, but also for designing lessons, choosing materials and providing students with a clear understanding of how they can improve.

Similarly, Instructor A also finds that planning assessments has been made easier with the CEFR, as she would identify materials that match the students' level according to the CEFR based on the clear descriptors that are provided.

*"When we set for the examination, we try to search for the text or the material that matches to the students' level … So all our materials are set using B1 because we want to try to cover the level that they are unable to reach before" (Instructor A)*

For example, when they are teaching students to be in B1 level, they assess the students with materials that are suitable for B1 level. The Council of Europe (2018) had in fact prepared the companion document which provides clearer descriptors and elaborations for specific tasks. A Malaysian study examined whether existing writing and reading assessment items were in line with the CEFR (Mohamad Uri & Abd Aziz, 2020). Based on the study, it could be seen that the CEFR provides a clear and comprehensible framework for teachers to refer to in terms of designing assessments for their students.

It can be said that the ESL instructors in this study are able to accept the alignment of the curriculum to the CEFR as the planning of assessments is made easier.

### 4.3. RQ3: Aligning Lessons on Sociolinguistic Competence to the CEFR

#### 4.3.1 Choosing authentic and meaningful materials

The most prevalent theme in addressing this research question is the ESL instructors' commitment and effort in choosing authentic and meaningful materials. The CEFR also highlights the importance of exposing learners to authentic and meaningful tasks and materials, especially as second or foreign language learners (Council of Europe, 2001). They might not be able to culturally relate to materials which can impact their language learning

experience. This exposure to authentic and meaningful materials would definitely have an impact on the development of their sociolinguistic competence, which relies heavily on real-life context (Foley, 2019).

Instructor A introduced her students to listening materials that she felt sounded more authentic, and the topics discussed were familiar to students. It improved students' motivation to learn compared to listening texts that were inauthentic. Previously, they had used texts that were prerecorded specifically for the lesson and those sounded stilted, not like what the learners would experience in real life. Instructor A said, "…we adopt it from a factual text … somehow it might sound formal. Might not be the real situation."

As for Instructor B, he decided to use materials that might be meaningful to learners because of their backgrounds and interests. He said, "When my students mention new songs, or new kpop band, I will google it and think of how to relate it to the next lesson." He found that using materials that the students felt to be meaningful to them would improve engagement and motivation to learn in his English language classrooms. Moreover, exposing the learners to authentic and meaningful materials would have a positive impact on the development of their sociolinguistic competence as they are exposed to language that is appropriate in various contexts. The CEFR also emphasises on the need for authenticity and meaningfulness when planning class tasks and interaction with students in the language classroom (Council of Europe, 2001).

When choosing materials for the English language classroom, Instructor C also pointed out the need for ESL instructors to be aware of students' exposure to the language and provide materials accordingly especially in terms of exposing those students to the relevant materials that might assist them in their language learning journey.

*"They don't have access to the wide variety of media because it's a luxury. Not all students have that. Not all students have access to Astro. What more Netflix?" (Instructor C)*

Due to the students' lack of exposure to the English language, Instructor C feels that it is the responsibility of the ESL instructor to introduce students to these materials so that they may have a good example of language use which is authentic and relatable.

Nur Ashiquin, et al., (2021) also discussed the lack of appropriate materials in ESL classrooms that align to the CEFR. The existing materials are not localised to the Malaysian students' needs and background. This relates to the next theme regarding the need for ESL instructors to be sensitive to students' needs and background.

### 4.3.2 Sensitivity to students' background

In order for the ESL instructors in this study to choose authentic and meaningful materials and plan their lessons whilst aligning to the CEFR, these instructors must first be sensitive and aware of their students' and background. A study by Marlyna and Syafawani (2018) has also discussed and emphasised the need to gain a better understanding of Malaysian students' background in raising awareness and consideration when communicating. In fact, the Council of Europe (2001) has also stated in the CEFR document how the students' individual variations such as their backgrounds might have an impact on their learning, and hence teachers need to know how to adapt their lessons accordingly.

In relation to his choice of materials to be used in the English language classroom, Instructor

C made connections to his students' background, and how it would affect their background knowledge on not only the English language but also certain cultural elements that different texts might have. When faced with this, he would take make the effort to explain the context that the students might not be familiar or exposed to.

*"...one challenge would be what I would like to say schema. Sometimes when I talk about, certain schemata alright, how some people, they don't have that background. So I have to explain the background as well." (Instructor C)*

Instructor A also felt that the students' background, or specifically the school they went to, would have an impact on their experiences in learning English because of the culture of the school in relation to the use of English.

*"Usually for me, during first class I have asked about their SPM English grade, and what kind of school that they come from. Because to be honest, those who study in Convent school, in the SBP, MRSM, they do have language week, or at least language day in which it is compulsory for them to speak in English. So it is different, and even if they come from daily secondary school, I will ask is it cluster school, SBT, you know because the culture of the school also plays a big role." (Instructor A)*

Students who go to schools where English is commonly used would have a better opportunity of being exposed to various forms of the English language, compared to those who did not. Moreover, those with different backgrounds might use different expressions to communicate the same message, which could impact in misunderstandings and miscommunications (Boonsuk & Ambele, 2019). Hence, when teaching students and developing their sociolinguistic competence, ESL instructors would need to be more sensitive of their students' backgrounds in order for them to provide an inclusive and appropriate learning experience for all.

### 4.3.3 Allowing flexibility in classroom interaction

An important characteristic for an ESL instructor in developing students' sociolinguistic competence and aligning to the CEFR would be flexibility in terms of classroom interaction. Instructor A expresses the need to provide a variety of contexts to learners for them to practice interacting in English, including situations where they talk to different people and about different topics based on what they are lacking in when communicating in English.

Instructor C feels that at times ESL instructors can be too structured, whereas he feels that admitting your mistakes at times can also be a learning opportunity for the students. He mentioned an instance where he admitted to using sociolinguistically inappropriate language. He used this to discuss the language use and teach the students about the appropriate way to convey meaning.

*"I myself have had various of instances where, I accidentally was sociolinguistically incompetent. So I like to share stories. The way I talk about it and sort of and I like to give advice to my students as much as possible." (Instructor C)*

Some language instructors may be worried to stray from standard language use in the classroom (Phanithira & Melor, 2017). However, instructors need to be more open to the use of language varieties in the classroom in order to develop students' sociolinguistic competence (Mougeon & Rehner, 2019). When ESL instructors are more flexible to sociolinguistic

variations in the classroom, they open more opportunities for the development of the competence for students.

Being open to sociolinguistic variations of course does not mean inappropriate use of the language. Instructor B found that the best way to develop students' sociolinguistic competence would be to interact with them using appropriate language for students to model after. He said sociolinguistic competence is not something that can be easily taught in class at it would require specific contexts for it to be relevant. Hence, he would usually make learning opportunities in the classroom in order for the students to be able to gain the opportunity to develop their sociolinguistic competence through interaction in the classroom. He once faced a student who used inappropriate language in the classroom and he decided to use that moment to teach appropriate language use.

*"I simply rephrase his words to him. So I said, "Okay, so you came in late because your internet connection was bad". So like rephrase to give him the implied idea that "This is the language that I should use, instead of the previous". ".(Instructor B)*

Through his indirect approach in several incidents, Instructor B feels that students have improved their sociolinguistic competence while communicating in the classroom and via their online interactions. The development of sociolinguistic competence is emphasised in the CEFR as it is one of the important dimensions in achieving communicative competence (Council of Europe, 2001).

### 4.4. Overall Discussion and Implications

Regarding the beliefs of the pre-degree ESL instructors regarding the teaching of sociolinguistic competence in the language classroom, it was revealed that the competence indeed needs to be taught in ESL classrooms. This is supported by Al-Sallal and Ahmed (2022), who express the need to address the different backgrounds and contexts that might differentiate each communication, and how having sociolinguistic competence might assist learners in navigating these differences. Moreover, merely aiming for proficiency is not sufficient in making language learners communicatively competent, as proficient learners are not necessarily sociolinguistically competent (Zarrinabadi, et al., 2021). Therefore, ESL instructors cannot overlook the teaching of sociolinguistic competence, especially in the Malaysian English language classroom. If Malaysian ESL instructors did not place much emphasis on sociolinguistic competence, they would not be able to align to the framework and develop their students' competence in this area.

As for the second research question on the ESL instructors' acceptance of the framework itself, it was found that they are able to accept the implementation of the CEFR in the Malaysian education system. However, they have raised concerns that need to be addressed in order for an appropriate implementation of the framework. One of the concerns is the lack of exposure to the framework, especially with the lack of existing localised materials (Nur Ashiquin, et al., 2021). The Malaysian ESL instructors in higher education institutions end up having to self-learn regarding the framework due to the absence of a localised guideline of the framework for the teaching and learning of English in Malaysia (Foley, 2019). Moreover, there is another concern regarding a disparity between the expected CEFR level of students as ascribed by the Ministry of Education (2015) as compared to the reality, in which learners are not able to achieve the expected CEFR level (Che Musa, et al., 2021). The ESL instructors feel that the CEFR provides an appropriate measure for students' capabilities in using the

language (Mohamad Uri & Abd Aziz, 2020), but perhaps improvements can be made in providing localised and contextualised guidelines and materials. The CEFR is well accepted among Malaysian English language instructors, but they hope for a better planning and execution by the policy makers and administrators. If appropriate exposure and training on CEFR is not given to Malaysian ESL instructors, they would not be able to align to the framework, hence being unable to follow through with The Roadmap by the ministry.

In aligning the teaching of sociolinguistic competence to the CEFR, it goes beyond the chosen method of conveying the lesson or the topics chosen in class. One of the most important choices that these ESL instructors made is the use of authentic and meaningful materials. Sociolinguistic competence can only be achieved if language learners are exposed to a variety of real-life contexts in the classroom (Foley, 2019), and the lack of existing CEFR-aligned materials that provide localised real-life experiences to learners is prevalent. Having an understanding of students' backgrounds and how this might impact the choice of materials, approach and classroom interaction is vital in avoiding misunderstandings and miscommunication (Boonsuk & Ambele, 2019). Furthermore, being flexible in classroom interaction not only means instructors need to be open to how students might communicate differently, but language instructors also need to be open to communicating using sociolinguistic variations themselves (Mougeon & Rehner, 2019). Thus, the teaching of sociolinguistic competence is not a linear path to take for ESL instructors; many allowances need to be made regarding learner individual variations, as well as contextal needs.

Reflecting back on the research questions of this paper, it could be concluded that the current landscape for the teaching and learning of English, especially the development of sociolinguistic competence, seems positive, and that ESL instructors are making efforts towards aligning to the CEFR. It is hoped that policy makers and English language instructors in the country could work towards more localised materials and guidelines for smooth and effective execution of the Malaysian Education Blueprint.

## 5. Conclusion

The main purpose of this study is to investigate the current landscape in terms of navigating the development of sociolinguistic competence whilst aligning to the CEFR. In order to answer this question, it was important to first understand the beliefs of the teaching of sociolinguistic competence as well as the acceptance of the CEFR among pre-degree English language instructors in Malaysia. To answer both these questions, it could be said that pre-degree ESL instructors have a generally positive perception towards the teaching of sociolinguistic competence and aligning to the CEFR, with a few concerns regarding the feasibility of both, especially with the lack of awareness and exposure to the concept of sociolinguistic competence and to the CEFR.

Having reached an understanding of the beliefs and acceptance of these instructors, only then could the question of aligning lessons to the CEFR for the development of sociolinguistic competence could be answered. In order to align their lessons to the CEFR in developing the students' sociolinguistic competence, the pre-degree instructors chose authentic and meaningful materials, were sensitive to the students' backgrounds and needs, as well as allowed for flexibility in the language classroom. It could be said that the instructors have to approach their classes with an openness to allow sociolinguistic variations to be used so that students can be exposed to them and find opportunities to practice them.

## 6. Implications

The findings of this study have important implications for English language educators, curriculum developers, and policymakers. First, they highlight the urgent need for targeted professional development and training programmes that equip ESL instructors with the knowledge and tools necessary to effectively teach sociolinguistic competence in line with the CEFR. Second, the study suggests that institutions should invest in creating and disseminating accessible teaching resources that explicitly address the integration of sociolinguistic elements and CEFR descriptors.

In terms of practical recommendations, it is advised that universities consider incorporating structured workshops or continuous professional learning modules focused on sociolinguistic competence and CEFR alignment. Additionally, collaborative platforms could be established to allow ESL instructors to share best practices, materials, and strategies.

### 6.1. Recommendations for Future Research

Future studies could be conducted to further provide insight to ESL instructors and policy makers on how further training could be provided to ESL instructors in developing students sociolinguistic competence, especially in aligning to the CEFR. From the interview sessions, it could be concluded that ESL instructors are passionate about developing students' communicative skills, but there are concerns regarding their understanding of the framework and also the availability of resources that may guide them in their teaching and learning process.

Hence, future research could focus on and lead towards the development of a proper guideline for the development of students' sociolinguistic competence, aligning to the CEFR. In providing students with CEFR-aligned opportunities to develop their sociolinguistic competence in the English language classroom, these instructors need to be sensitive to students' backgrounds and needs as well as allow for flexibility when communicating with their learners.

### 6.2. Concluding Remarks

Ultimately, this study contributes to the ongoing conversation about how Malaysian higher education can better prepare students for real-world communication by reinforcing the role of sociolinguistic competence in language learning. With greater institutional support and clearer pedagogical guidance, ESL instructors can play a pivotal role in ensuring that CEFR implementation goes beyond structural language skills to include the sociocultural nuances of real communication.

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# FROM FRAMEWORK TO CLASSROOM: HOW MALAYSIAN ESL INSTRUCTORS NAVIGATE SOCIOLINGUISTIC COMPETENCE THROUGH CEFR

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## ABSTRACT

The development of students' sociolinguistic competence has gained greater attention with the introduction of the Common European Framework of Reference for Languages (CEFR) into the Malaysian education system, which encourages a shift towards communicative competence. This study explores how pre-degree ESL instructors in Malaysian universities navigate the teaching of sociolinguistic competence in alignment with the CEFR. It focuses on their beliefs about teaching sociolinguistic competence, their acceptance of the CEFR, and how they align their classroom practices with the framework. The findings reveal that instructors generally hold positive views about both sociolinguistic competence and the CEFR, although some concerns remain—particularly regarding the lack of awareness and practical guidance. Instructors reported using meaningful and authentic materials, being mindful of students' backgrounds and needs, and allowing flexibility in classroom interactions. It is hoped that future research will lead to the development of clearer guidelines and training for instructors to support the effective implementation of CEFR-aligned sociolinguistic instruction.

**Keywords:** communicative competence, ESL learners, higher education

## 1. Introduction

Communicative Language Teaching (CLT) was developed as an approach to language instruction that emphasizes interactive teaching methods between teachers and students to cultivate learners who can use the language effectively in communication (Hymes, 1972). Dell Hymes (1972) expanded on Chomsky's (1965) concept of linguistic competence by introducing the notion of communicative competence, which includes the ability to understand and use language appropriately in various social situations. This means that beyond just speaking accurately, a learner should be able to navigate different contexts with suitable language use. Hymes' idea was further elaborated by scholars such as Canale and Swain (1980) and Canale (1983), who identified four key dimensions of communicative competence: grammatical, discourse, sociolinguistic, and strategic competence. These dimensions are widely utilized in research on language teaching and learning. Grammatical competence pertains to the accuracy of language use, while sociolinguistic, discourse, and strategic competences focus on adapting language use to different contexts. CLT aims to develop learners who can effectively use language in real-life situations beyond the classroom (Savignon, 2018), which is crucial for second and foreign language learners who may struggle with practical communication.

In recent years, sociolinguistic competence has garnered increased attention in second and foreign language teaching, as educators and researchers recognize the importance of teaching learners how to use language appropriately in various social contexts (Taguchi, 2011; Youn & Kormos, 2022). While foundational work by Halliday (1971) highlighted that sociolinguistic competence involves not only choosing the right words but also understanding their intended meanings, contemporary studies emphasize the growing need to develop learners' ability to interpret and produce contextually appropriate language. Sociolinguistic competence helps learners navigate both the appropriateness of meaning related to speech acts and the appropriateness of form, or how language is expressed (Canale & Swain, 1980; Canale, 1983). It supports effective communication by prompting learners to consider their interlocutors, the goals of the interaction, and cultural expectations (Taguchi, 2018). However, many second and foreign language learners continue to face challenges with sociolinguistic appropriateness, particularly due to limited access to authentic language use in classroom settings (Liu, 2008; Youn & Kormos, 2022).

The teaching of sociolinguistic competence is vital as even proficiency is not an appropriate benchmark for the language learners' ability to communicate appropriately in different contexts Zarrinabadi, et al., (2021). In the Malaysian landscape, it is hoped that sociolinguistic competence is given emphasis with the implementation of the Common European Framework of Reference for Languages (CEFR) in the teaching and learning of English in the country. However, even the implementation of the framework itself needs to be investigated, as some concerns regarding the alignment to the framework in Malaysia due to the lack of guidance and materials that are localised for Malaysian teachers and students (Foley, 2019; Nur

Ashiquin, et. al, 2021). Hence, this study intends to understand how ESL instructors align the teaching of sociolinguistic competence to the CEFR. In order to provide a clear and in-depth exploration of the topic, the instructors' beliefs about the teaching of the competence and their acceptance of the CEFR need to be investigated as they may have an influence on how the instructors choose to align their lessons on sociolinguistic competence to the CEFR.

### 1.2 Research Questions

1) What are pre-degree ESL instructors' beliefs about the teaching of sociolinguistic competence in the classroom?
2) How is the acceptance of CEFR in Malaysian higher education institutions among pre-degree ESL instructors?
3) How do these pre-degree ESL instructors align lessons on sociolinguistic competence to the CEFR?

## 2. Literature Review

### 2.1 The Teaching of English in Malaysia: Towards Communicatively Competent Learners

To enhance the communicative competence of young Malaysians, the Ministry of Education has introduced several updates to the English language curriculum. They replaced the Integrated English Language Syllabus for Primary and Secondary Schools (KBSR & KBSM) with the Standard English Language Syllabus for Primary and Secondary Schools (KSSR and KSSM), aiming to better implement Communicative Language Teaching (CLT) (Liyana, Hamid, & Renshaw, 2019). The previous KBSM syllabus was criticized for emphasizing reading, writing, and grammar at the expense of communicative skills, focusing too much on examination preparation (Fauziah & Fauzee, 2017). Teachers encountered difficulties adapting to learner-centered methods due to large class sizes and challenges in updating their activities to align with the new curriculum (Hardman & Norhaslynda, 2014). Additionally, there were concerns about English threatening the status of Malay and the disparity in English proficiency between urban and rural areas, with some rural Malaysians feeling demotivated as they saw little practical use for English (Zuraidah, 2014).

The Ministry of Education's Roadmap (2015) outlined necessary reforms to address these challenges and further develop communicative competence through English language education. Hazita (2016) suggested that the Roadmap could improve English teaching and address related issues, helping to align Malaysian learners' proficiency with the Common European Framework of Reference for Languages (CEFR) adapted from the Council of Europe (2001). The Roadmap encompasses a broad range of educational stages, from preschool to tertiary education and teacher training, focusing on curriculum, teaching methods, and assessment.

In contrast to schools, English language programs in Malaysian tertiary institutions lack standardization and established guidelines (Ministry of Education, 2015). Variations in course outcomes and institutional goals contribute to this lack of uniformity. Although diverse course content and assessments may offer benefits, there are concerns about whether these programs adequately prepare students for real-life communication (Liyana, Hamid, & Renshaw, 2019). This variation is particularly critical for understanding how instructors interpret and implement key language components such as sociolinguistic competence in the absence of

centralized guidance. This gap informed the selection of interview-based qualitative inquiry for this study, allowing for exploration into ESL instructors' personal approaches to teaching sociolinguistic competence. Previous research has highlighted several issues with English language teaching prior to CEFR implementation, including insufficient contact hours, non-standardized teacher proficiency levels, student difficulties with learner-centered approaches, and subpar teaching materials (Nurjanah & Siew, 2013; Ministry of Education, 2015). The introduction of the CEFR in Malaysia aims to elevate educational standards to an international level and provide a benchmark for evaluating graduates' proficiency (Hazita, 2016). Employers face challenges in assessing graduates due to the absence of internationally recognized benchmarks, and the Ministry of Education hopes that CEFR implementation will help address these issues.

### 2.2 Aligning English Language Instruction at Malaysian Tertiary Institutions with the CEFR for Enhancing Sociolinguistic Competence

The Common European Framework of Reference for Languages (CEFR) was created to help language learners gauge their proficiency and skills (North, 2007). It offers a clear framework for both teachers and students on how to acquire and assess language abilities through communicative activities (Council of Europe, 2001). The CEFR outlines three main competencies: linguistic, pragmatic, and sociolinguistic. Sociolinguistic competence within the CEFR encompasses understanding "linguistic markers of social relations, politeness conventions, register differences, and dialect and accent" (Council of Europe, 2018, p. 137).

Since its early development, there has been debate about how to integrate and assess sociolinguistic competence in the classroom. Issues include its elusive definition within proficiency constructs, imprecise descriptors, and inconsistent teacher responses (North, 2007). To address these issues, the Companion Volume with New Descriptors for the CEFR was introduced (Council of Europe, 2018). Initially, terms like "native speakers" and "nativelike performance" were used, but these were revised to "speakers of the target language" or "proficient speakers" concerning sociolinguistic competence. Savignon (2018) also notes that sociolinguistic competence doesn't require native-like usage but rather the appropriate application of language in various social contexts. The CEFR emphasizes the importance of cultural and societal awareness in language learning, encouraging learners to understand and engage with their interlocutors' intentions and cultural contexts (Council of Europe, 2018). One reason for the CEFR's widespread adoption is its focus on equipping learners to communicate effectively in real-life situations (Foley, 2019). While sociolinguistic competence is crucial, it often takes a backseat to linguistic competence in second and foreign language instruction (Council of Europe, 2001).

In Malaysia, sociolinguistic competence is sometimes overshadowed by linguistic competence in English language classrooms. Normazidah, Koo, and Hazita (2012) have noted that Malaysian classrooms tend to emphasize exam-focused aspects of language rather than those that enhance real-world communication. Given this imbalance, the current study employs semi-structured interviews to explore instructors' perspectives and practices in realigning their teaching approaches with CEFR's sociolinguistic goals. To address this, the Ministry of Education introduced a three-phase plan to align the English curriculum with the CEFR (Ministry of Education, 2015). The first phase focused on teacher training, the second on aligning assessments, syllabi, and curricula to the CEFR, and the third on evaluating and revising these changes. The Ministry aims to stress sociolinguistic aspects to better prepare students for effective communication outside the classroom, in line with CEFR

recommendations (Council of Europe, 2001).

However, the CEFR should not be seen as a standalone document; localized guidelines and materials are needed to support its implementation (Moser, 2015). Malaysia lacks a tailored version of the CEFR, unlike countries such as Japan, Thailand, and China (Foley, 2019). The Ministry of Education (2015) intends to evaluate how best to adapt the CEFR for Malaysian classrooms after initial implementation. This absence of a localized framework could pose challenges for teachers. Moser (2015) reports that some educators struggle with applying the competence-based framework due to a lack of examples or guidance. The use of qualitative interviews in this study thus allows for a contextualized understanding of how Malaysian ESL instructors interpret and adapt CEFR descriptors—especially sociolinguistic ones—within their unique teaching environments. The shift from a knowledge-based curriculum to one focused on competence may lead to confusion and misinterpretation, particularly when the CEFR is not standardized across institutions. This inconsistency raises concerns about how effectively teachers' skills and students' communicative abilities can be assessed across different educational settings.

### 2.3 Teaching Sociolinguistic Competence in Higher Education Institutions

The mode of instruction and communication in tertiary institutions differs significantly from that in schools, which can be daunting for some students. Adapting to the necessity of using English is another challenge they must face. Sociolinguistic competence in English has become increasingly crucial, especially with the internationalization of higher education. As noted by Altbach (2004), universities worldwide are pursuing internationalization to attract students from various countries. In Malaysia, English is rapidly becoming the primary medium of instruction and communication due to the influx of international students. Both local and foreign students must use English effectively for academic discussions and presentations. However, differences in backgrounds, values, and norms can lead to miscommunications and misunderstandings, affecting how they use and perceive the language (Ng & Nyland, 2017). A lack of sociolinguistic competence can leave students unprepared for interacting in diverse social contexts. A significant issue hindering Malaysian students' development of sociolinguistic competence is its insufficient focus in English classrooms (Foley, 2019). This is partly due to Malaysia's exam-oriented culture; however, assessing sociolinguistic competence through exams does not address the need for practical, real-life application.

To enhance sociolinguistic competence for effective academic and social communication, steps must be taken. The language classroom can serve as a supportive environment for acquiring this competence. Yassin and Norizan (2018) found that Malaysian students from the same class often use similar communication strategies despite their diverse backgrounds, suggesting that classroom language use significantly influences their communicative practices. Furthermore, Norma, Siti Jamilah, and Ahmad Affendi (2016) highlighted how Eastern values impact Malay learners' sociolinguistic choices. Unlike the individualistic nature of native English speakers, Malay learners often prioritize community and group needs, affecting their use of language. Native speakers' sociolinguistic norms may not always align with Malaysian learners' practices (Muthusamy & Farashaiyan, 2017). Therefore, teachers play a crucial role in developing Malaysian learners' sociolinguistic competence. Exposure to native speakers through media might not provide an adequate understanding of sociolinguistic variations, especially within a local context. These pedagogical and cultural insights provided the rationale for selecting semi-structured interviews as the data collection method in this

study, allowing ESL instructors to share their beliefs and practices in fostering sociolinguistic competence in diverse classroom contexts. Teachers need to present not only native speakers' sociolinguistic variations but also discuss cultural differences between native speakers and local learners. Researchers have suggested that Malaysian learners' limited exposure to sociolinguistic variations in the classroom contributes to their lack of competence (Farashaiyan & Muthusamy, 2016).

Several studies (Maryam & Wu, 2012; Farashaiyan & Tan, 2012; Norma, Siti Jamilah, & Ahmad Affendi, 2016) have investigated sociolinguistic competence among Malaysian university students. Maryam and Wu (2012) found that both Malaysian and Chinese students tend to form thoughts in their first language before translating them into English, with their responses heavily influenced by their native cultures. Farashaiyan and Tan (2012) revealed that Malaysian and Iranian students both include titles when expressing gratitude, a practice influenced by their native cultures. Malaysian students also used fewer expressions of gratitude compared to their Iranian counterparts, possibly due to limited exposure to language variations. Norma, Siti Jamilah, and Ahmad Affendi (2016) found that Malaysian students use fewer direct refusal strategies, focusing more on preserving feelings, unlike native English speakers who might adopt more direct approaches. This difference may stem from the Eastern cultural emphasis on group harmony compared to the individualistic nature of Western cultures (Asmah, 2002). These findings indicate that learners' sociolinguistic competence is influenced by their cultural backgrounds and norms.

Teachers must guide students in developing sociolinguistic competence, helping them understand and navigate the differences between their own cultural norms and those of English-speaking contexts. Teachers should not only highlight native speakers' sociolinguistic variations but also consider the Malaysian learners' backgrounds (Norma, Siti Jamilah, & Ahmad Affendi, 2016). It's essential to recognize that variations in Malaysian students' language use, while different from native speakers, are not necessarily inappropriate. Sociolinguistic competence involves understanding and using language appropriately in various social contexts, not just mimicking native speakers. Teachers play a vital role in this process by contextualizing language instruction to fit local norms and values. Farashaiyan and Muthusamy (2016) stress the importance of adapting English language instruction to the Malaysian context.

Most local studies on sociolinguistic competence focus on speech acts (Farashaiyan & Tan, 2012; Maryam & Wu, 2012; Marlyna & Salmiza, 2013; Norma, Siti Jamilah, & Ahmad Affendi, 2016; Phanithira & Melor, 2017; Marlyna & Nurul Syafawani, 2018), possibly because they are more observable and measurable than other aspects of sociolinguistic competence. Marlyna and Nurul Syafawani (2018) chose to study speech acts due to their frequent issues among Malaysian students, influenced by cultural factors. Marlyna and Salmiza (2013) noted that speech acts often receive more research attention due to their face-threatening nature, which can be particularly uncomfortable for Asians. To foster communicative competence, teachers need to focus not only on speech acts but also on other aspects of sociolinguistic competence. Awareness of their own language use and its impact on students is crucial. Phanithira and Melor (2017) found that students used more polite language with teachers compared to their peers, while teachers used more direct language. This highlights the need for teachers to be mindful of sociolinguistic variations and their influence on student communication.

The integration of the Common European Framework of Reference for Languages (CEFR)

into Malaysia's ESL curriculum has prompted a focus on sociolinguistic competence, highlighting both opportunities and challenges. Studies such as Abd Rahman et al. (2022) demonstrate how ESL instructors actively engage students in co-constructing meaning and use explicit teaching methods to foster sociolinguistic competence. However, Nii and Yunus (2022) note that while teachers generally view CEFR positively, they express concerns about the availability of resources and adequate training to effectively implement the framework. Additionally, Majid and Matore (2024) emphasize the role of language assessment literacy (LAL) in supporting CEFR's integration, pointing to gaps among ESL teachers that may hinder the accurate assessment of sociolinguistic competence. Collectively, these studies underscore the importance of sociolinguistic competence within the CEFR framework, stressing the need for professional development, resource adaptation, and innovative teaching approaches to effectively integrate sociolinguistics into ESL education in Malaysia.

To conclude, the Malaysian education system has been reforming English language instruction to enhance communicative competence, with a focus on real-life communication rather than just exam preparation. The Ministry of Education introduced a new curriculum and the CEFR to improve English proficiency. However, challenges remain in adapting to learner-centered methods, addressing rural-urban disparities, and incorporating sociolinguistic competence, which is often overshadowed by linguistic focus. Sociolinguistic competence, emphasizing appropriate language use in social contexts, is crucial for effective communication, especially in higher education, where internationalization increases the need for cross-cultural understanding. In Malaysian tertiary institutions, English language programs lack standardization, and students' cultural backgrounds influence their sociolinguistic practices. Teachers play a pivotal role in helping students navigate these differences and develop sociolinguistic skills, ensuring that language use aligns with both local and global norms. The shift towards competence-based teaching, however, requires contextual adaptation to the Malaysian environment.

## 3. Methodology

### 3.1 Research Design

A qualitative study has been conducted with pre-degree university instructors teaching English language proficiency courses in understanding their beliefs about the teaching of sociolinguistic competence, the acceptance of CEFR in Malaysian higher education institutions among pre-degree ESL instructors, and how these pre-degree ESL instructors align their lessons on sociolinguistic competence to the CEFR.

A case study approach was chosen, as an in-depth understanding of the issue in the existing context is imperative Creswell and Poth (2018), seeing as CEFR has quite recently been integrated into the teaching of English in education institutions in Malaysia. Moreover, as literature has shown, sociolinguistic competence needs to be developed among Malaysian students, and more studies need to be conducted in this area. Semi-structured interviews were conducted as the method for data collection, providing the opportunity for in-depth and rigorous exploration of the study, while maintaining consistency across core themes relevant to the research questions. The instructors were interviewed until a point of saturation, and data was sufficient.

### 3.2 Research Participants

Participants in this study were selected using purposive sampling, focusing on individuals who could provide relevant and rich information about the phenomenon under investigation. Among the selection criteria are (1) Malaysian, (2) pre-degree English language instructors, (3) teaching in university, and (4) teaching English language proficiency course. The choice of instructors teaching pre-degree students was because they are at the early stages of their university experience. Students making the transition to university often encounter difficulties adjusting to both the physical and social aspects of university life, particularly in relation to teaching and learning (Sheard et al., 2003). Hence, students in this level of study would be most appropriate for the introduction and teaching of sociolinguistic competence, which would allow them to communicate with others in a variety of contexts.

Malaysian ESL instructors from local public universities that align the curriculum of their English language proficiency courses to the CEFR were identified, and were contacted via email. A total of 10 ESL instructors were initially invited to participate in the study; however, only three instructors were available and agreed to be interviewed. Data collection continued until thematic saturation was reached after the third interview, at which point no additional participants were recruited.

The small sample size of three instructors is a recognised limitation of this study and may restrict the generalisability of the findings to a broader population of ESL instructors. As a qualitative case study, the aim was not to produce generalisable results but to offer in-depth insights into individual instructors' perspectives and practices regarding CEFR alignment and the teaching of sociolinguistic competence. The title and scope of the article have been carefully considered to reflect this exploratory and context-specific focus.

### 3.3 Data Collection and Analysis

This study mainly investigates how ESL instructors align their lessons on sociolinguistic competence to the CEFR. In addressing the first research question, the ESL instructors were asked questions regarding their beliefs about the teaching of sociolinguistic competence, which is vital in understanding their choices in how they teach sociolinguistic competence in the language classroom. As for the second research question regarding the acceptance of CEFR, the ESL instructors were asked about their exposure to the CEFR and how they received this new framework. The instructors' acceptance of CEFR can have a significant influence on how they align to the framework when delivering lessons on sociolinguistic competence. Finally, the third research question is addressed as the ESL instructors answer questions on their practices in teaching sociolinguistics competence whilst aligning to the CEFR.

The data collected through semi-structured interviews were analysed using thematic analysis as outlined by Braun and Clarke (2006), which allows for the identification, analysis, and interpretation of patterns of meaning within qualitative data. The analysis followed a six-phase process: familiarisation with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. All interviews were transcribed verbatim and uploaded into NVivo 12 software to assist in organising, coding, and managing the data systematically.

Initial codes were developed inductively from the data, while also being informed by relevant literature on sociolinguistic competence and CEFR alignment. These codes were then grouped into broader categories, from which subthemes and overarching themes were refined through iterative review and peer debriefing. To ensure trustworthiness, several strategies were

employed: credibility was enhanced through member checking, where participants were given the opportunity to verify their interview transcripts and interpretations; transferability was supported by providing rich, thick descriptions of the context and participants; dependability was ensured by maintaining an audit trail of all analytical decisions and procedures; and confirmability was addressed through reflexive journaling to minimise researcher bias and maintain transparency throughout the analysis.

The themes were compared and reviewed to ensure that they were truly reflective of the ESL instructors' responses and addressed the research questions in providing an in-depth understanding of the current landscape in terms of aligning to the CEFR in developing students' sociolinguistic competence.

### 3.4 Ethical Considerations

Ethical approval for the study was obtained from the JKEUPM at the researcher's institution, ensuring that all research procedures complied with institutional and national ethical standards for research involving human participants.

All participants were provided with an informed consent form outlining the purpose of the study, their right to withdraw at any time, the voluntary nature of participation, and measures taken to ensure confidentiality and data protection. Pseudonyms were assigned to all participants to protect their identities, and any potentially identifying information was removed from transcripts and publications. Participants were assured that their responses would be used solely for academic purposes and that no personal or professional repercussions would arise from their participation.

## 4. Findings and Discussion

The three ESL instructors chosen for this study have taught for less than 5 years at their respective institutions. Instructor A teaches diploma-level students, whereas Instructor B and C teach foundation-level students. In terms of their students' field of study, Instructor A and C teach students from a variety of study programmes, while Instructor B teaches students from only one study programme. They are all teaching English language proficiency courses under the same higher education institution, but at different locations.

The sections below are organised according to the research questions.

### 4.1 RQ1: Beliefs about the Teaching of Sociolinguistic Competence in the Classroom

Based on the literature discussed in the previous sections, it can be deduced that the teaching of sociolinguistic competence in Malaysian classrooms needs to be studied further. Moreover, instructors' beliefs specifically need to be studied as it not the common dimension of communicative competence which is given emphasis in Malaysian English language classrooms. This is echoed by Instructor B who feels that the teaching of language is about fluency, and that students will not see the significance of developing their sociolinguistic competence because it is not graded.

*"Especially because we evaluate students based on that. Remember that we give them their marks based on their fluency and their language skill, rather than their ability to use language in appropriate context. It's important, but we don't grade them based on that." (Instructor B)*

Savignon (2018) has also discussed the lack of emphasis on appropriacy and communicative skills compared to fluency and accuracy in studies related to the teaching and learning of English. With regards to this, instructors such as Instructor A and C feel that the development of students' sociolinguistic competence is vital, as it allows students to explore politeness, different contexts and audiences, as well as sensitivity when communicating with others.

*"... according to the cultural need, according to the purpose, at the moment when they are communicating, so I think it is good to teach the students about what are the polite ways to talk, I mean in approaching different audience" (Instructor A)*

Similarly, a study by Al-Sallal and Ahmed (2022) had discussed the importance of understanding culture and background among learners of English as a second and foreign language especially to avoid misunderstandings and miscommunications. In fact, Instructor C goes on to add that having sociolinguistic competence allows language learners to be more sensitive of current issues occurring in the society to avoid from offending others due to ignorance and appropriateness in communicating with others.

With regards to their concerns on teaching the competence, Instructor B and C highlight that sociolinguistic competence is a complex concept for them to teach to their ESL learners. Inatructor C explains that he would introduce sociolinguistic competence differently to students with varying proficiency levels.

*"...depends on my audience. Like, for example, if I'm teaching, (students with higher proficiency), I can go all out. But, like, when I'm teaching, (less proficient students), for example. I can't go into it that way. They won't even understand. So I maybe embed it within my courses" (Instructor C)*

Zarrinabadi, et al., (2021) discussed the different studies that investigated the relationship between proficiency level and sociolinguistic competence. It was revealed that at times the students' level of proficiency may have an impact on the development of their sociolinguistic competence perhaps due to their lack of linguistic ability to express appropriate language use.

It can be clearly seen that ESL instructors in higher education institutions have differing views of the teaching of sociolinguistic competence. Hence, this needs to be taken into consideration before even delving into the idea of aligning to the CEFR for the development of sociolinguistic competence in the ESL classroom. How teachers view sociolinguistic competence itself, and how students perceive this dimension of communicative competence can have a vital role in whether or not it is given emphasis in the classroom.

### 4.2 RQ2: The Acceptance of CEFR among Pre-Degree ESL Instructors

#### 4.2.1 Exposure to the framework

The second research question was raised since the CEFR has been introduced to the Malaysian education system. However, there has yet to be a thorough discussion of the acceptance of ESL instructors with regard to aligning the current syllabus to the CEFR. Though the Roadmap includes the higher education institutions in its plan, it could be said that aligning to the CEFR is not an easy feat, as there is no standardization among higher education institutions in the country, unlike secondary and primary public schools (Ministry of Education, 2015).

Instructor B has never been exposed to CEFR by his institution, while Instructor A said that no specific briefing or workshop was given in terms of aligning to CEFR. However, she did attend a workshop for new courses that did mention aligning to the CEFR levels. As for Instructor C, his institution would often conduct workshops in aligning their courses and programmes to the CEFR.

*"They would do a special it's like it's a 2-day workshop. The first day is on CEFR only. And we have some of our lectures like Dr. YYY, for example, which is a pro. So these lecturers will just come in and talk about it. And I remember, because (our department), they do have a comprehensive seminar on it." (Instructor C)*

The jarring difference in the exposure that is given to the instructors on CEFR by their institution can definitely have an impact on their acceptance of the framework. As Instructor B mentioned, aligning to the CEFR requires for the institution administrators to play a vital role in giving exposure.

*"I think it is possible for us to adapt CEFR in our Malaysian higher education curriculum. It's just the educators, the lecturers need to be more exposed. Because if we don't know about CEFR, there's no way we are going to implement it." (Instructor B)*

English language teachers in Malaysian schools are ready to accept the implementation of the CEFR in Malaysian schools, however there are concerns regarding having sufficient materials (Nur Ashiquin, et al., 2021). This could be because of the lack of standardisation for higher education curriculum compared to secondary school curriculum, where alignment is standardised and clear.

It could be said that the acceptance of the framework among ESL instructors in Malaysian higher education institutions is very much influenced by the lack of exposure to it. Hence, more exposure needs to be given by the ministry and the university administrators to English language instructors so that appropriate alignment and integration of the CEFR can be done.

#### 4.2.2 Self-learning of the framework

Due to their exposure or lack of exposure, all three instructors have all embarked on their own self-learning journeys in terms of getting more information on the framework and how to align it to the current curriculum. Instructor A decided to search for information on the CEFR because she became interested in it when it was first introduced in the country.

*"I have read about CEFR before when it first, it was first implemented in Malaysia, when there are so many people talking about CEFR. I become interested, and I tried to search for it." (Instructor A)*

The internet becomes the main source of information for these instructors, including Instructor B who has expressed this, mentioning "That is the only, my only source of info on CEFR, from my own research on the internet." This is a matter of concern because it would seem as though these instructors do not have a proper guideline that they can refer to for the implementation of the CEFR in teaching of English in higher education institutions (Foley, 2019).

Instructor C, despite having been introduced to the CEFR through workshops, also had to go through his own self-learning process when he had to assess the students' English exit tests

that are aligned to the CEFR.

*"Especially when, I had to do that because when we first had to assess the English exit test, that was when I was introduced to CEFR. It was the first time." (Instructor C)*

Even though workshops are conducted, it is still vital to recognise that the alignment to the CEFR in terms of English language assessment requires a deeper understanding of the framework. In fact, the Council of Europe had introduced the Companion Volume to provide clearer descriptors so that appropriate assessments can be planned for the curriculum development.

The fact that ESL instructors are learning about the CEFR on their own is good, but it is important that administrators provide the proper training on the CEFR so that the instructors are more inclined to accept the framework and align to it.

### 4.2.3 The reality of CEFR alignment in Malaysia

Ideally, we would expect that the alignment of the CEFR to the teaching and learning of English in higher education institutions in Malaysia would go smoothly as planned. Unfortunately, this is not the experience of these three ESL instructors. Instructor A pointed out that the ministry has aligned to the CEFR, identifying B1 as the level that Form 5 students should be when they leave school.

*"...B1 by the end of Form 5. But unfortunately, when the students come to (this institution) – I can only speak based on my experience teaching diploma students, I can see that they don't really reach B1 level" (Instructor A)*

For diploma students, it can be seen that they are not B1 level as planned by the ministry. This could be due to a number of factors, but how ESL instructors manage this is what Instructor A sees as most important. This coincides with a study conducted on the curriculum for the teaching of English in a higher education institution in Malaysia that has been aligned to the CEFR. It was found that the students' current level of proficiency did not match the CEFR level they were expected to be in, and this was echoed by employers who expected the graduates to achieve a certain level pf proficiency (Che Musa, et al., 2021). Similarly, in this study, Instructor A faced the need to refer to the CEFR level which is below the level that is expected of the students. Hence, materials and tasks needed to be modified accordingly.

Having a different perspective, Instructor B states that for him, lessons are not focused on CEFR as a framework, but on students' needs. He feels that having knowledge on CEFR has not affected the way he teaches, rather he prefers to align the lesson to students' needs.

*"I simply teach based on the students' needs. You know, because it depends on their needs ... Personally for me, the knowledge about different levels of CEFR, umm did not change my teaching style" (Instructor B)*

This perspective is also important to discuss, seeing as ESL instructors who feel this way might not be inclined to learn more about CEFR as they do not see the importance of aligning to it. This is the reality from not only the eyes of Instructor B, but possibly many other ESL instructors. Though the CEFR has been introduced in Malaysia and most institutions are aligning their curriculum towards it, perhaps some apprehension stems from the lack of exposure to the framework. This goes back to the first theme that was found on the lack of

exposure of ESL instructors to the CEFR.

Though CEFR alignment may be seen in a positive light, it is vital also to note that the descriptors might not be realistically assigned to the students based on their education level. Besides that, some ESL instructors may feel that aligning with the CEFR is not necessary, as they can proceed with the current way they are evaluating and teaching students.

#### 4.2.4 CEFR as a measure for assessment

The CEFR is also used for planning and designing assessments in English language classrooms. Instructor C feels that the CEFR provides a good measure for assessment as it illustrates clear descriptors of each level, and it focuses more on the ability to communicate rather than mainly on accuracy.

*"What does a band 6 mean? What does a band 4 mean? … MUET is more academic in a way. It's more on accuracy" (Instructor C)*

When assessing students' skills in communicating in English, Instructor C feels that more emphasis should be given to the students' ability to convey meaning and interact effectively, rather than accuracy. Moreover, comparing CEFR for assessment to the Malaysian University English Test, Instructor C finds that the CEFR provides clearer descriptors for each level, which assists in not only assessing the students, but also in designing lessons, choosing materials, and providing students with a clear understanding of how they can improve.

Similarly, Instructor A also finds that planning assessments has been made easier with the CEFR, as she would identify materials that match the students' level according to the CEFR based on the clear descriptors that are provided.

*"When we set for the examination, we try to search for the text or the material that matches to the students' level … So all our materials are set using B1 because we want to try to cover the level that they are unable to reach before" (Instructor A)*

For example, when they are teaching students to be at the B1 level, they assess the students with materials that are suitable for the B1 level. The Council of Europe (2018) had in fact prepared the companion document, which provides clearer descriptors and elaborations for specific tasks. A Malaysian study examined whether existing writing and reading assessment items were in line with the CEFR (Mohamad Uri & Abd Aziz, 2020). Based on the study, it could be seen that the CEFR provides a clear and comprehensible framework for teachers to refer to in terms of designing assessments for their students.

It can be said that the ESL instructors in this study are able to accept the alignment of the curriculum to the CEFR as the planning of assessments is made easier.

### 4.3 RQ3: Aligning Lessons on Sociolinguistic Competence to the CEFR

#### 4.3.1 Choosing authentic and meaningful materials

The most prevalent theme in addressing this research question is the ESL instructors' commitment and effort in choosing authentic and meaningful materials. The CEFR also highlights the importance of exposing learners to authentic and meaningful tasks and

materials, especially as second or foreign language learners (Council of Europe, 2001). They might not be able to culturally relate to materials which can impact their language learning experience. This exposure to authentic and meaningful materials would definitely have an impact on the development of their sociolinguistic competence, which relies heavily on real-life context (Foley, 2019).

Instructor A introduced her students to listening materials that she felt sounded more authentic, and the topics discussed were familiar to students. It improved students' motivation to learn compared to listening texts that were inauthentic. Previously, they had used texts that were prerecorded specifically for the lesson and those sounded stilted, not like what the learners would experience in real life. Instructor A said, "…we adopt it from a factual text … somehow it might sound formal. Might not be the real situation."

As for Instructor B, he decided to use materials that might be meaningful to learners because of their backgrounds and interests. He said, "When my students mention new songs, or new kpop band, I will google it and think of how to relate it to the next lesson." He found that using materials that the students felt to be meaningful to them would improve engagement and motivation to learn in his English language classrooms. Moreover, exposing the learners to authentic and meaningful materials would have a positive impact on the development of their sociolinguistic competence as they are exposed to language that is appropriate in various contexts. The CEFR also emphasises on the need for authenticity and meaningfulness when planning class tasks and interaction with students in the language classroom (Council of Europe, 2001).

When choosing materials for the English language classroom, Instructor C also pointed out the need for ESL instructors to be aware of students' exposure to the language and provide materials accordingly especially in terms of exposing those students to the relevant materials that might assist them in their language learning journey.

*"They don't have access to the wide variety of media because it's a luxury. Not all students have that. Not all students have access to Astro. What more Netflix?" (Instructor C)*

Due to the students' lack of exposure to the English language, Instructor C feels that it is the responsibility of the ESL instructor to introduce students to these materials so that they may have a good example of language use that is authentic and relatable.

Nur Ashiquin et al. (2021) also discussed the lack of appropriate materials in ESL classrooms that align with the CEFR. The existing materials are not localised to the Malaysian students' needs and background. This relates to the next theme regarding the need for ESL instructors to be sensitive to students' needs and backgrounds.

#### 4.3.2 Sensitivity to students' background

In order for the ESL instructors in this study to choose authentic and meaningful materials and plan their lessons whilst aligning to the CEFR, these instructors must first be sensitive and aware of their students' backgrounds. A study by Marlyna and Syafawani (2018) has also discussed and emphasised the need to gain a better understanding of Malaysian students' background in raising awareness and consideration when communicating. In fact, the Council of Europe (2001) has also stated in the CEFR document how the students' individual variations, such as their backgrounds, might have an impact on their learning, and hence, teachers need to know how to adapt their lessons accordingly.

In relation to his choice of materials to be used in the English language classroom, Instructor C made connections to his students' background, and how it would affect their background knowledge on not only the English language but also certain cultural elements that different texts might have. When faced with this, he would take make the effort to explain the context that the students might not be familiar or exposed to.

*"…one challenge would be what I would like to say schema. Sometimes when I talk about, certain schemata alright, how some people, they don't have that background. So I have to explain the background as well." (Instructor C)*

Instructor A also felt that the students' background, or specifically the school they went to, would have an impact on their experiences in learning English because of the culture of the school in relation to the use of English.

*"Usually for me, during first class I have asked about their SPM English grade, and what kind of school that they come from. Because to be honest, those who study in Convent school, in the SBP, MRSM, they do have language week, or at least language day in which it is compulsory for them to speak in English. So it is different, and even if they come from daily secondary school, I will ask is it cluster school, SBT, you know because the culture of the school also plays a big role." (Instructor A)*

Students who go to schools where English is commonly used would have a better opportunity of being exposed to various forms of the English language, compared to those who did not. Moreover, those with different backgrounds might use different expressions to communicate the same message, which could impact in misunderstandings and miscommunications (Boonsuk & Ambele, 2019). Hence, when teaching students and developing their sociolinguistic competence, ESL instructors would need to be more sensitive of their students' backgrounds in order for them to provide an inclusive and appropriate learning experience for all.

#### 4.3.3 Allowing flexibility in classroom interaction

An important characteristic for an ESL instructor in developing students' sociolinguistic competence and aligning with the CEFR would be flexibility in terms of classroom interaction. Instructor A expresses the need to provide a variety of contexts to learners for them to practice interacting in English, including situations where they talk to different people and about different topics based on what they are lacking when communicating in English.

Instructor C feels that at times ESL instructors can be too structured, whereas he feels that admitting your mistakes at times can also be a learning opportunity for the students. He mentioned an instance where he admitted to using sociolinguistically inappropriate language. He used this to discuss language use and teach the students about the appropriate way to convey meaning.

*"I myself have had various of instances where, I accidentally was sociolinguistically incompetent. So I like to share stories. The way I talk about it and sort of and I like to give advice to my students as much as possible." (Instructor C)*

Some language instructors may be worried about straying from standard language use in the classroom (Phanithira & Melor, 2017). However, instructors need to be more open to the use

of language varieties in the classroom in order to develop students' sociolinguistic competence (Mougeon & Rehner, 2019). When ESL instructors are more flexible to sociolinguistic variations in the classroom, they open more opportunities for the development of competence for students.

Being open to sociolinguistic variations of course does not mean inappropriate use of the language. Instructor B found that the best way to develop students' sociolinguistic competence would be to interact with them using appropriate language for students to model after. He said sociolinguistic competence is not something that can be easily taught in class at it would require specific contexts for it to be relevant. Hence, he would usually make learning opportunities in the classroom in order for the students to be able to gain the opportunity to develop their sociolinguistic competence through interaction in the classroom. He once faced a student who used inappropriate language in the classroom and he decided to use that moment to teach appropriate language use.

*"I simply rephrase his words to him. So I said, "Okay, so you came in late because your internet connection was bad". So like rephrase to give him the implied idea that "This is the language that I should use, instead of the previous". ".(Instructor B)*

Through his indirect approach in several incidents, Instructor B feels that students have improved their sociolinguistic competence while communicating in the classroom and via their online interactions. The development of sociolinguistic competence is emphasised in the CEFR as it is one of the important dimensions in achieving communicative competence (Council of Europe, 2001).

### 4.4 Overall Discussion and Implications

Regarding the beliefs of the pre-degree ESL instructors regarding the teaching of sociolinguistic competence in the language classroom, it was revealed that the competence indeed needs to be taught in ESL classrooms. This is supported by Al-Sallal and Ahmed (2022), who express the need to address the different backgrounds and contexts that might differentiate each communication, and how having sociolinguistic competence might assist learners in navigating these differences. Moreover, merely aiming for proficiency is not sufficient in making language learners communicatively competent, as proficient learners are not necessarily sociolinguistically competent (Zarrinabadi, et al., 2021). Therefore, ESL instructors cannot overlook the teaching of sociolinguistic competence, especially in the Malaysian English language classroom. If Malaysian ESL instructors did not place much emphasis on sociolinguistic competence, they would not be able to align to the framework and develop their students' competence in this area.

As for the second research question on the ESL instructors' acceptance of the framework itself, it was found that they are able to accept the implementation of the CEFR in the Malaysian education system. However, they have raised concerns that need to be addressed in order for an appropriate implementation of the framework. One of the concerns is the lack of exposure to the framework, especially with the lack of existing localised materials (Nur Ashiquin, et al., 2021). The Malaysian ESL instructors in higher education institutions end up having to self-learn regarding the framework due to the absence of a localised guideline of the framework for the teaching and learning of English in Malaysia (Foley, 2019). Moreover, there is another concern regarding a disparity between the expected CEFR level of students as ascribed by the Ministry of Education (2015) as compared to the reality, in which learners

are not able to achieve the expected CEFR level (Che Musa, et al., 2021). The ESL instructors feel that the CEFR provides an appropriate measure for students' capabilities in using the language (Mohamad Uri & Abd Aziz, 2020), but perhaps improvements can be made in providing localised and contextualised guidelines and materials. The CEFR is well accepted among Malaysian English language instructors, but they hope for a better planning and execution by the policy makers and administrators. If appropriate exposure and training on CEFR is not given to Malaysian ESL instructors, they would not be able to align to the framework, hence being unable to follow through with The Roadmap by the ministry.

In aligning the teaching of sociolinguistic competence to the CEFR, it goes beyond the chosen method of conveying the lesson or the topics chosen in class. One of the most important choices that these ESL instructors made is the use of authentic and meaningful materials. Sociolinguistic competence can only be achieved if language learners are exposed to a variety of real-life contexts in the classroom (Foley, 2019), and the lack of existing CEFR-aligned materials that provide localised real-life experiences to learners is prevalent. Having an understanding of students' backgrounds and how this might impact the choice of materials, approach and classroom interaction is vital in avoiding misunderstandings and miscommunication (Boonsuk & Ambele, 2019). Furthermore, being flexible in classroom interaction not only means instructors need to be open to how students might communicate differently, but language instructors also need to be open to communicating using sociolinguistic variations themselves (Mougeon & Rehner, 2019). Thus, the teaching of sociolinguistic competence is not a linear path to take for ESL instructors; many allowances need to be made regarding learner individual variations, as well as contextal needs.

Reflecting back on the research questions of this paper, it could be concluded that the current landscape for the teaching and learning of English, especially the development of sociolinguistic competence, seems positive, and that ESL instructors are making efforts towards aligning to the CEFR. It is hoped that policy makers and English language instructors in the country could work towards more localised materials and guidelines for smooth and effective execution of the Malaysian Education Blueprint.

## 5. Conclusion

The main purpose of this study is to investigate the current landscape in terms of navigating the development of sociolinguistic competence whilst aligning to the CEFR. In order to answer this question, it was important to first understand the beliefs of the teaching of sociolinguistic competence as well as the acceptance of the CEFR among pre-degree English language instructors in Malaysia. To answer both these questions, it could be said that pre-degree ESL instructors have a generally positive perception towards the teaching of sociolinguistic competence and aligning to the CEFR, with a few concerns regarding the feasibility of both, especially with the lack of awareness and exposure to the concept of sociolinguistic competence and to the CEFR.

Having reached an understanding of the beliefs and acceptance of these instructors, only then could the question of aligning lessons to the CEFR for the development of sociolinguistic competence could be answered. In order to align their lessons to the CEFR in developing the students' sociolinguistic competence, the pre-degree instructors chose authentic and meaningful materials, were sensitive to the students' backgrounds and needs, as well as allowed for flexibility in the language classroom. It could be said that the instructors have to approach their classes with an openness to allow sociolinguistic variations to be used so that

students can be exposed to them and find opportunities to practice them.

## 6. Implications

The findings of this study have important implications for English language educators, curriculum developers, and policymakers. First, they highlight the urgent need for targeted professional development and training programmes that equip ESL instructors with the knowledge and tools necessary to teach sociolinguistic competence in line with the CEFR effectively. Second, the study suggests that institutions should invest in creating and disseminating accessible teaching resources that explicitly address the integration of sociolinguistic elements and CEFR descriptors.

In terms of practical recommendations, it is advised that universities consider incorporating structured workshops or continuous professional learning modules focused on sociolinguistic competence and CEFR alignment. Additionally, collaborative platforms could be established to allow ESL instructors to share best practices, materials, and strategies.

### 6.1 Recommendations for Future Research

Future studies could be conducted to further provide insight to ESL instructors and policy makers on how further training could be provided to ESL instructors in developing students sociolinguistic competence, especially in aligning to the CEFR. From the interview sessions, it could be concluded that ESL instructors are passionate about developing students' communicative skills. However, there are concerns regarding their understanding of the framework and also the availability of resources that may guide them in their teaching and learning process.

Hence, future research could focus on and lead towards the development of a proper guideline for the development of students' sociolinguistic competence, aligning to the CEFR. In providing students with CEFR-aligned opportunities to develop their sociolinguistic competence in the English language classroom, these instructors need to be sensitive to students' backgrounds and needs as well as allow for flexibility when communicating with their learners.

### 6.2 Concluding Remarks

Ultimately, this study contributes to the ongoing conversation about how Malaysian higher education can better prepare students for real-world communication by reinforcing the role of sociolinguistic competence in language learning. With greater institutional support and clearer pedagogical guidance, ESL instructors can play a pivotal role in ensuring that CEFR implementation goes beyond structural language skills to include the sociocultural nuances of real communication.

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# FOSTERING CRITICAL THINKING VIA SOCRATIC DIALOGUE AMONG ENTREPRENEURIAL DEVELOPMENT STUDENTS IN A MALAYSIAN PUBLIC UNIVERSITY

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## ABSTRACT

Socratic dialogue, characterized by critical questioning and reflective thinking, plays a crucial role in enhancing critical thinking skills. This study examines the process by which Socratic dialogue fosters critical thinking among students in the course of BPME6093 Entrepreneurial Development at Universiti Utara Malaysia Kuala Lumpur Campus. Utilizing a case study research design, the study focused on 10 respondents through a series of focus group discussion conducted over five months. The data collection process was guided by an interview protocol based on a 'Critical Thinking Rubric' specifically designed for the course. Each interview aimed to identify the development of entrepreneurial skills and the enhancement of critical thinking abilities. Thematic analysis of the focus group interview data revealed significant insights into how Socratic dialogue encourages students to question assumptions, evaluate arguments, and articulate their thoughts more coherently. Findings suggest that the iterative process of asking and answering questions in a structured manner enables students to develop a deeper understanding of entrepreneurial concepts and fosters a mind-set conducive to innovation and problem-solving. This research contributes to the existing body of knowledge by highlighting the potential of Socratic dialogue as an effective pedagogical tool in higher education, particularly in the field of entrepreneurial development. The implications of this study emphasize the necessity of incorporating critical thinking

frameworks into entrepreneurial education to equip students for the complexities of the business world. The study concludes by offering recommendations for educators to adopt similar strategies, aimed at enhancing both critical thinking and entrepreneurial skills in students.

**Keywords:** higher education, innovation, problem-solving

## 1. Introduction

The development of critical thinking skills is a cornerstone of higher education, especially within disciplines that require innovative problem-solving and entrepreneurial acumen. Among various andragogical strategies, Socratic dialogue stands out as a potent method for fostering critical thinking. Critical thinking, often described as the "art of thinking about thinking," involves the ability to analyze and evaluate information, arguments, and evidence systematically. It is a fundamental skill for students, particularly in entrepreneurial education, where the ability to navigate complex business environments and devise innovative solutions is paramount (Facione, 2011). The integration of critical thinking frameworks within the curriculum not only enhances students' analytical capabilities but also prepares them for real-world challenges.

Critical thinking is a cornerstone of entrepreneurial success and innovation, as it equips entrepreneurs with the ability to navigate complex challenges and seize opportunities effectively. The following importance of critical thinking shows why it is vital:

i. **Problem-Solving**: Entrepreneurs often face unpredictable challenges. Critical thinking enables them to analyze problems, identify root causes, and develop innovative solutions. As Richard Branson aptly said, "Launching a business is essentially an adventure in problem-solving".
ii. **Decision-Making**: Sound decisions are crucial for entrepreneurial success. Critical thinking helps entrepreneurs evaluate risks, weigh rewards, and make informed choices that align with their goals.
iii. **Innovation**: Critical thinking fosters creativity by encouraging entrepreneurs to question the status quo, explore new ideas, and develop groundbreaking solutions that address market needs.
iv. **Adaptability**: In dynamic business environments, adaptability is key. Critical thinking allows entrepreneurs to assess changing circumstances and pivot strategies effectively.
v. **Resilience**: Entrepreneurs often encounter setbacks. Critical thinking cultivates resilience by enabling them to learn from failures and approach challenges with a strategic mindset.

Additionally, the implications for entrepreneurial development includes:

i. **Market Analysis**: Entrepreneurs use critical thinking to understand market trends, consumer behavior, and competitive landscapes.
ii. **Strategic Planning**: It aids in crafting strategies that are both innovative and practical, ensuring long-term growth.

iii. **Continuous Learning**: Critical thinking promotes reflective inquiry, encouraging entrepreneurs to adapt and improve their approaches over time.

In essence, critical thinking is not just a skill but a framework for envisioning possibilities and driving entrepreneurial success.

Socratic dialogue, rooted in the teachings of Socrates, involves a disciplined questioning process aimed at stimulating critical thinking and illuminating ideas. This method encourages students to question assumptions, evaluate arguments critically, and develop coherent thought processes. According to Paul and Elder (2006), Socratic questioning fosters deep learning by engaging students in a dialogue that challenges their reasoning and promotes reflective thinking. Previous studies have demonstrated the effectiveness of Socratic dialogue in promoting critical thinking in various educational settings. For instance, Bell and Pape (2012) found that Socratic seminars significantly improved students' critical thinking skills in secondary education. Similarly, the study by Van Vliet et al. (2015) highlighted the role of Socratic dialogue in enhancing critical reflection among medical students. These findings suggest that Socratic dialogue could be equally beneficial in entrepreneurial education, helping students to develop the critical thinking skills necessary for business success.

### 1.1. Socratic Dialogue in Action

Socratic questioning, grounded in the dialogic methods of the Greek philosopher Socrates, is a pedagogical approach that fosters critical thinking through disciplined, open-ended inquiry. It is widely used in education to help students clarify concepts, analyze assumptions, and engage deeply with content (Tes Editorial, 2024). Instructors using this method often withhold direct answers, instead prompting students to reflect, explain, and justify their reasoning. This approach cultivates intellectual humility and enhances metacognition, which are crucial for deep learning and the development of lifelong learners (Stauffer, 2023).

Effective implementation of Socratic dialogue involves diverse strategies such as seeking clarification, probing evidence, and exploring consequences. For example, questions like “What do you mean by that?” or “What might be the implications?” are common in classrooms utilizing this method (Baybekov, 2023). Malaysian educational setting found that systematic use of Socratic questioning improved students’ critical thinking and writing skills, though some learners initially struggled with confidence and language proficiency. This demonstrates the potential for Socratic questioning to be adapted across cultural and linguistic contexts (Driscoll, 2024).

Overall, Socratic dialogue transforms passive learning into an active, inquiry-based process where students construct understanding through dialogue. This method not only increases engagement and knowledge retention but also helps develop higher-order thinking skills essential for problem-solving and decision-making (Gress, 2023). Educators are thus encouraged to incorporate Socratic dialogue as part of a broader effort to cultivate reflective, independent thinkers who are prepared for complex real-world challenges (Ekeh at al., 2024).

The Learning Rubric Matrix assesses student performance in three areas: Critical Thinking, Entrepreneurship, and Socratic Dialogue. In Critical Thinking, students’ progress from struggling to identify problems to deeply analyzing issues and offering insightful conclusions. In Entrepreneurship, students move from limited initiative to generating viable ideas, creating plans, and understanding market needs. In Socratic Dialogue, students evolve from passive

participation to actively engaging in deep discussions, asking questions, and encouraging critical thinking. This rubric provides clear expectations for each skill, helping students understand what's needed to excel.

Empirical evidence suggests that Socratic dialogue is an effective method for fostering critical thinking skills:

(i) **Enhanced Critical Thinking in Language Learners**: A study conducted with English Language Learners (ELLs) demonstrated that the Socratic Method significantly improved their critical thinking skills over a five-week period. The approach involved structured questioning and discussions, which encouraged learners to analyze, evaluate, and synthesize information.
(ii) **Student-Centered Learning**: Research highlights that the Socratic Method aligns well with student-centered learning approaches, promoting active engagement and deeper understanding. In Malaysia, for instance, educators have found it effective in enhancing critical thinking among students, despite challenges like time constraints and the need for teacher training.
(iii)**Practical Application**: The method's emphasis on dialogue and inquiry helps students develop skills such as problem-solving, logical reasoning, and reflective thinking. These are crucial for navigating complex real-world scenarios.

While the Socratic Method has proven benefits, its success depends on factors like the facilitator's skill in guiding discussions and the learners' willingness to engage actively (Table 1).

**Table 1: Development of Postgraduate Assessment Using a Rubric For Critical Thinking and Entrepreneurship Through Socratic Dialogue Model**

| Criteria | Beginning (1) | Developing (2) | Proficient (3) | Exemplary (4) |
|---|---|---|---|---|
| Critical Thinking | Struggles to identify problems or make logical conclusions. | Identifies problems but analysis lacks depth or clarity. | Analyzes problems logically with relevant evidence. | Demonstrates deep analysis and insightful conclusions. |
| Entrepreneurship | Shows limited initiative or understanding of opportunity. | Shows some initiative, but ideas lack feasibility. | Demonstrates viable ideas with planning and resource awareness. | Shows innovation, strong planning, and understands market needs. |
| Socratic Dialogue | Rarely participates or only gives superficial responses. | Participates but responses lack reasoning or clarity. | Engages with thoughtful responses and relevant questioning. | Leads dialogue with probing questions and encourages deep thinking. |

Entrepreneurial education in Malaysian public universities has been gaining momentum as the government emphasizes the importance of nurturing "job creators" rather than "job seekers." Below the overview of its current state, challenges, and opportunities:

Current state includes:

i. **Compulsory Courses**: Entrepreneurship subjects are mandatory for all students in public universities, ensuring widespread exposure to entrepreneurial concepts.
ii. **Practical Learning**: Universities incorporate activities such as seminars, workshops, and entrepreneurship events to provide hands-on experience.
iii. **Government Support**: The Ministry of Higher Education actively promotes entrepreneurship education through policies and funding.

Challenges include:

i. **Resource Constraints**: Limited funding and facilities can hinder the effectiveness of entrepreneurship programs.
ii. **Teaching Methods**: Some educators lack training in innovative teaching methods, which affects the quality of entrepreneurial education.
iii. **Student Engagement**: Encouraging active participation and fostering entrepreneurial mindsets among students remains a challenge.

Opportunities include:

i. **Economic Impact**: Entrepreneurship education can reduce graduate unemployment and boost economic growth.
ii. **Global Collaboration**: Partnerships with international institutions can enhance the quality and scope of entrepreneurial education.
iii. **Innovation and Startups**: Universities can serve as incubators for innovative ideas, providing students with the resources to launch startups.

Malaysian public universities are on the right track, but addressing challenges and leveraging opportunities will be key to maximizing the impact of entrepreneurial education.

In Malaysia, the importance of entrepreneurial education is highlighted by the government's efforts to foster innovation and economic growth. As part of the Malaysia Education Blueprint 2015-2025, there is a strong emphasis on nurturing critical thinking and problem-solving skills among students (Ministry of Education Malaysia, 2015). However, traditional teaching methods in Malaysian universities often emphasize route learning and memorization, which do not adequately prepare students for the dynamic nature of the business world. Entrepreneurial education aims to equip students with the knowledge and skills necessary to create and manage businesses successfully. It involves fostering an entrepreneurial mindset, which includes traits such as innovation, risk-taking, and resilience. Critical thinking is integral to this mindset, as it enables students to analyze market trends, evaluate business opportunities, and develop strategic plans.

Pedagogy and andragogy are two distinct approaches to education, each tailored to different learner profiles and contexts. Here's a breakdown of their differences and implications for entrepreneurial education:

The key factors include:

i. **Learner Profile**:

a) *Pedagogy*: Focuses on teaching children and adolescents. Learners are typically dependent on the teacher for guidance and knowledge.
b) *Andragogy*: Designed for adult learners who are self-directed and bring their life experiences into the learning process.

ii. **Teaching Approach**:

a) *Pedagogy*: Teacher-centered, with structured curricula and external motivators like grades.

b) *Andragogy*: Learner-centered, emphasizing autonomy, problem-solving, and practical application.

iii. **Motivation**:

a) *Pedagogy*: Learners are often motivated by external rewards or fear of failure.
b) *Andragogy*: Adults are driven by intrinsic goals, such as career advancement or personal growth.

iv. **Content Delivery**:

a) *Pedagogy*: Focuses on foundational knowledge and discipline.
b) *Andragogy*: Prioritizes experiential learning and real-world problem-solving.

The implications for entrepreneurial education as follows:

i. **Pedagogy**:
   a. Suitable for younger learners who need foundational knowledge about entrepreneurship.
   b. Encourages discipline and structured learning, which can be beneficial for understanding basic business concepts.
ii. **Andragogy**:
   a. Ideal for adult learners or aspiring entrepreneurs who seek practical skills and strategies.
   b. Promotes experiential learning, mentorship, and active engagement, which are crucial for developing entrepreneurial competencies.

Entrepreneurial education often benefits from a blended approach, combining the structured foundation of pedagogy with the experiential and self-directed elements of andragogy. This dual strategy ensures learners of all ages and backgrounds can thrive in entrepreneurial pursuits.

Entrepreneurial education in Malaysian public universities is justified by its significant role in fostering economic growth and reducing unemployment. The Malaysian Ministry of Higher Education has made entrepreneurship subjects compulsory for students in public universities, aiming to produce "job creators" rather than "job seekers". This initiative aligns with the nation's vision of achieving developed status by nurturing entrepreneurial skills and encouraging innovation.

Public universities provide various entrepreneurship activities, such as training programs, seminars, and short courses, which equip students with practical knowledge and experience. These efforts contribute to creating a workforce that is adaptable, innovative, and capable of addressing market demands. Additionally, entrepreneurial education promotes self-reliance and empowers students to explore business opportunities, ultimately enhancing Malaysia's economic resilience.

While challenges persist, such as the need for improved teaching methods and resources, the overall impact of entrepreneurial education in Malaysian public universities underscores its importance in shaping a dynamic and competitive economy.

This study addresses the gap by investigating how Socratic dialogue can be used to enhance

critical thinking among entrepreneurial development students at a Malaysian public university. It examines the process by which Socratic dialogue fosters critical thinking among students in the course of BPME6093 Entrepreneurial Development at Universiti Utara Malaysia Kuala Lumpur Campus. Specifically, the research questions for this study are as follows:

1) How do BPME6093 Entrepreneurial Development students perceive the role of Socratic dialogue in facilitating or hindering their critical thinking?

2) To what extent does the Socratic dialogue help develop the students' critical thinking?

### 1.2. Theoretical Framework

This study draws upon the adult learner's theoretical framework developed by Malcom Knowels (1980) to investigate deeper into how postgraduate students perceive and engage in Socratic Questionings in order to develop critical thinking.


**Figure 1: Theoretical Framework for Adult Learners**

The development of critical thinking skills is essential in adult education, where learners bring a wealth of experience and prior knowledge to the educational environment. Refer to Figure 1.0 Theoretical framework for adult learners, the theoretical framework of andragogy, developed by Malcolm Knowles, provides a foundational understanding of adult learning principles. This framework, when combined with the methodologies of critical thinking and Socratic questioning, offers a robust approach to enhancing learning outcomes in adult education.

Andragogy, a term popularized by Malcolm Knowles (1980), refers to the art and science of helping adults learn. Knowles posited that adults learn differently from children and therefore require different teaching approaches. His theory is based on several 6 key assumptions about adult learners:

1) Self-Directed Learning: Adults prefer to take responsibility for their own learning. They are autonomous and self-directed, seeking to have a say in their educational journey (Knowles, 1984). This contrasts with the more dependent nature of child learners in pedagogy.

2) Experience as a Resource: Adults bring a diverse array of experiences to the learning process. These experiences serve as a rich resource for learning, as adults tend to draw on their background knowledge and life experiences when encountering new information (Merriam & Bierema, 2014).
3) Readiness to Learn: Adult learners are often ready to learn things that they feel they need to know. Their readiness to learn is closely tied to their social roles and responsibilities, making education more relevant and timely (Knowles et al., 2015).
4) Problem-Centered Learning: Adults are motivated to learn to the extent that they perceive the learning will help them perform tasks or solve problems. They prefer learning that is organized around life situations rather than subject matter units (Tough, 1979).
5) Internal Motivation: While external motivators such as job promotions are influential, adults are primarily driven by internal factors like self-esteem, self-confidence, and personal satisfaction (Knowles, 1984).

Malcolm Knowles (1980) introduced the concept of *andragogy*, which he defined as "the art and science of helping adults learn." This approach emphasizes the unique characteristics and needs of adult learners, distinguishing it from traditional pedagogy, which focuses on teaching children.

These principles have had a profound impact on adult education, shaping teaching methods and curricula to better accommodate the needs of adult learners.

### 1.3. Socratic Dialogue

Originated by the Greek philosopher Socrates, the Socratic dialogue involves a dynamic exchange between teacher and students, where the teacher persistently poses probing questions to uncover the underlying beliefs that shape the students' views and opinions. Although often misunderstood, this dialectical method of questioning forms the foundation of much of Western pedagogical tradition, dating back to Plato. An extreme depiction of this technique is seen in the character of Dr. Kingsfield, portrayed by John Houseman in the 1973 film "The Paper Chase." In his effort to delve into ethical dilemmas and moral principles, Dr. Kingsfield employs a harsh version of Socratic questioning, subjecting his law students to intense scrutiny and humiliation over the details and implications of legal cases.

Paul and Elder (2006) describe Socratic questioning as a method for examining underlying assumptions, exploring complex ideas, and uncovering hidden values (see Figure 2). Incorporating Socratic questioning into adult education involves several key practices:

1) **Clarification**: Asking questions that help clarify thoughts, such as "What do you mean by that?" or "Can you give me an example?"
2) **Probing Assumptions**: Challenging underlying assumptions with questions like "What are you assuming?" or "How would your position change if this assumption is incorrect?"
3) **Exploring Evidence**: Encouraging the examination of evidence with questions such as "What evidence supports your view?" or "Is there reason to doubt this evidence?"
4) **Examining Consequences**: Considering the implications of ideas by asking "What are the consequences of this idea?" or "What might be the long-term impact?"

5) **Perspectives**: Looking at different perspectives by asking "How would someone who disagrees with you respond?" or "What is an alternative viewpoint?"

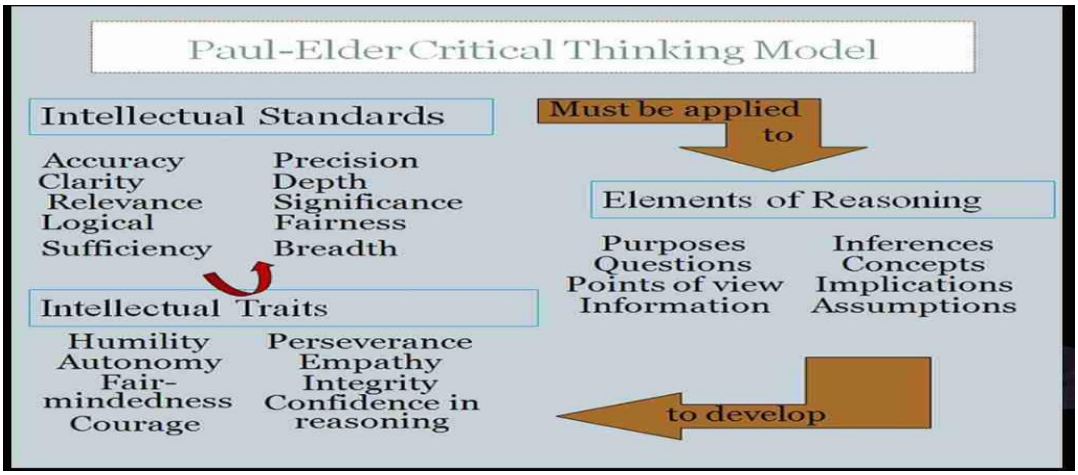


**Figure 2: Paul and Elder Critical Thinking Model (**Paul & Elder, 2006)

Paul and Elder (2006) emphasize Socratic questioning as a powerful method for critical thinking and intellectual exploration. This approach involves asking deep, probing questions to examine underlying assumptions, uncover hidden values, and explore complex ideas. By challenging the foundations of thought, Socratic questioning encourages individuals to reflect on their beliefs, analyze reasoning, and consider alternative perspectives.

The method is particularly effective in fostering intellectual humility and clarity, as it requires participants to justify their viewpoints and address inconsistencies. Paul and Elder highlight its role in education, where it can be used to develop students' analytical skills and promote thoughtful dialogue. Socratic questioning is not just about finding answers but about cultivating a disciplined and reflective approach to thinking.

Socratic Dialogue is highly effective in fostering critical thinking, as it encourages individuals to engage in reflective and analytical thought processes. This method, rooted in the teachings of Socrates, revolves around asking open-ended questions that challenge assumptions, promote deeper understanding, and stimulate intellectual curiosity.

In educational contexts, Socratic Dialogue has been shown to enhance students' ability to analyze, evaluate, and synthesize information. By engaging in structured conversations, learners are encouraged to articulate their reasoning, identify contradictions in their beliefs, and explore alternative perspectives. This approach not only develops higher-order thinking skills but also nurtures metacognitive abilities, enabling students to evaluate their own thought processes.

Moreover, Socratic Dialogue aligns with modern pedagogical goals, such as student-centered learning and inquiry-based approaches. It has been particularly effective in creating a safe and supportive environment where learners feel empowered to question and collaborate, fostering a growth mindset and independent learning.

However, implementing this method effectively requires skilled facilitation, as educators must master questioning techniques and manage classroom dynamics. Despite these challenges, the

benefits of Socratic Dialogue in cultivating critical thinking make it a valuable tool in both academic and professional settings.

### 1.4. Critical Thinking

Critical thinking is the process of rationally analysing and attempting to solve problems accurately and efficiently, without relying on guesses and assumptions. This cognitive skill involves a mental process where one must analyse, examine, and scrutinize options based on acquired knowledge to form an opinion or a set of actions. Business leaders use critical thinking to address daily challenges, while students depend on it for their learning processes and research. It involves thinking rationally and clearly, and understanding the connections between opinions and ideas (Steven West, 2017).

To cultivate critical thinkers, educators must provide students with the necessary strategies. This means moving beyond surface-level questions to those that encourage students to delve into their background knowledge and make connections to real-world scenarios, thereby making learning more memorable and meaningful. Critical thinking is a broad term. Researchers believe it involves students effectively identifying, analysing, and evaluating content or skills. In this process, students discover and present compelling reasons to support their answers or thinking. Educators aim to promote the use of 21st-century tools and, importantly, thinking skills. According to Joseph Mathew (2019), some essential skills foundational to critical thinking include: a) Communication and Information skills, b) thinking and Problem-Solving skills, c) Interpersonal and Self- Directional skills and d) Collaboration skills.

### 1.5. The Importance of Critical Thinking in Entrepreneurial Success and Innovation

In today's fast-paced and competitive business environment, the success of an entrepreneur depends not only on creativity and passion but also on the ability to think critically. Critical thinking the capacity to analyze situations, make informed decisions, and solve problems systematically—is a fundamental skill that underpins entrepreneurial success and drives innovation (Toxirovna, 2025). It equips entrepreneurs with the tools to navigate uncertainty, recognize opportunities, and create value in dynamic markets.

One of the core aspects of entrepreneurship is problem-solving and decision-making. Entrepreneurs constantly encounter challenges that require immediate attention and thoughtful resolution. Critical thinking enables them to evaluate problems from various angles, consider multiple solutions, and make decisions based on logic and evidence rather than assumptions or emotions (Rathee et al., 2025). This ability to make reasoned choices is essential in reducing errors and maximizing outcomes in high-stakes business scenarios.

Moreover, critical thinking plays a significant role in opportunity recognition. Successful entrepreneurs are those who can identify unmet needs, gaps in the market, or emerging trends before others do. Through careful observation and analytical reasoning, critical thinkers are able to distinguish genuine opportunities from temporary trends or distractions (Rathee et al., 2025). This foresight is crucial in launching innovative products or services that meet real demands and generate long-term value.

In addition, critical thinking is vital for strategic planning. Entrepreneurs must formulate short-term and long-term goals, design strategies to achieve them, and anticipate potential risks and obstacles. Critical thinkers approach planning with a logical and structured mindset, considering both internal and external factors that may affect their business. They are able to weigh the pros and cons of various strategies and select the ones that align best with their vision and resources (Keelson et al., 2025).

While creativity is often celebrated in entrepreneurship, critical thinking complements and enhances innovation. It helps refine creative ideas by evaluating their feasibility, market potential, and scalability. Entrepreneurs who think critically can take raw concepts and develop them into practical, innovative solutions that address specific problems or needs. This process of refinement ensures that innovation is not just imaginative but also implementable and valuable. Another key area where critical thinking is indispensable is risk management. Entrepreneurs must deal with uncertainty and make decisions that involve financial, operational, and reputational risks. Critical thinkers are better equipped to assess these risks, predict potential outcomes, and develop contingency plans. This thoughtful approach minimizes the impact of failures and increases the chances of long-term success (Rathee et al., 2025).

Furthermore, critical thinking enhances leadership and communication, both of which are essential for managing teams, attracting investors, and engaging customers. Entrepreneurs who think critically are able to articulate their ideas clearly, listen actively to feedback, and resolve conflicts constructively (Keelson et al., 2025). They foster a culture of open dialogue and rational problem-solving, which contributes to a more innovative and productive work environment. Lastly, critical thinking enables entrepreneurs to learn from failure. In the entrepreneurial journey, setbacks are inevitable. However, those who can reflect on their experiences, identify what went wrong, and adapt their strategies accordingly are more likely to grow and succeed. Critical thinkers maintain a growth mind-set and view failures as valuable learning opportunities rather than as permanent setbacks.

In conclusion, critical thinking is an essential skill for any entrepreneur aiming for success and innovation. It empowers individuals to make sound decisions, recognize and seize opportunities, plan strategically, manage risks effectively, and continuously improve through reflection. As the business landscape becomes more complex and competitive, the ability to think critically will remain a vital asset for entrepreneurial growth and innovation.

### 1.6. Relating theoretical framework and research questions.

1) How do BPME6093 Entrepreneurial Development students perceive the role of Socratic dialogue in facilitating or hindering their critical thinking?

Within the context of andragogy, it is essential to understand students' perceptions of the Socratic dialogue. Adult learners, such as BPME6093 Entrepreneurial Development students, bring diverse experiences and self-directed learning preferences to the classroom. The Socratic dialogue, with its emphasis on questioning and critical reflection, can either facilitate or hinder their critical thinking depending on how it aligns with these principles. Researching student perceptions can help determine whether the Socratic dialogue complements their learning styles and experiences, thereby enhancing critical thinking, or if it poses challenges to their engagement and cognitive processes.

2) To what extent does the Socratic dialogue help develop students' critical thinking?

Andragogy highlights the importance of active engagement and problem-solving in adult learning. The Socratic dialogue, characterized by its probing questions and reflective discussions, aligns well with these principles by encouraging learners to critically analyze and synthesize information. By evaluating the extent to which Socratic dialogue impacts students' critical thinking, we can assess its effectiveness in promoting deeper understanding, analytical skills, and the ability to apply knowledge in real-world contexts. This research question aims to measure the tangible benefits of Socratic dialogue in developing critical thinking skills among adult learners.

## 2. Methodology

### 2.1. Research Design

The case study research design was chosen for its ability to provide an in-depth understanding of the process by which Socratic dialogue enhances critical thinking skills. This qualitative approach allows for a detailed examination of the experiences and perspectives of the participants, offering rich insights into the effectiveness of Socratic questioning in an educational setting (Yin, 2018).

### 2.2. Participant Selection

The population for this study consisted of postgraduate students enrolled at the Universiti Utara Malaysia, Kuala Lumpur. Participants were selected using a purposeful sampling technique, with the inclusion criteria being postgraduate students enrolled in Campus in the course of BPME6093 Entrepreneurial Development, year 2023. This method allowed researchers to choose information-rich cases that provided substantial insights pertinent to the study's central inquiry (Yin, 2014). From the eligible cases, 10 out of 12 postgraduate students were selected as the sample for this case study. The exclusion criteria are those who have not completed the 42 hours face-to-face learning process. The demographics of the participants are presented in Table 2. All participants had career backgrounds related to the field of corporate and business working in both the public and private sectors of their respective industries. Their work experience ranged from 5 to 25 years. Pseudonyms were used to ensure the confidentiality of the participants' identities.

Respondents from this study include males and females. About 50 percent male and 50 percent female. Six of them come from the police department, whose roles are executive and non-executive levels. Other respondents' roles are business manager, lawyer, head of department, and chief clerk. Their services in their respective roles range from 5 years to 25 years. Two persons were serviced from 5 to 7 years, four persons were serviced from 11 years to 15 years, and two persons were serviced from 16 years to 25 years.

**Table 2: Demographics of Participants**

| Respondent | Gender | Age | Career background | Years of experience |
|---|---|---|---|---|
| A | Male | 34 | Business Manager | 11 |
| B | Female | 35 | Lawyer | 11 |
| C | Male | 35 | Intelligent Officer | 10 |
| D | Male | 32 | Policeman | 18 |
| E | Male | 29 | Policeman | 5 |
| F | Female | 32 | Head of Department | 16 |

| | | | | |
|---|---|---|---|---|
| I | Female | 34 | Project Manager | 16 |
| J | Female | 41 | Police Inspector | 25 |
| K | Female | 29 | Chief Clerk | 7 |
| L | Male | 37 | Policeman | 15 |

### 2.3. Data Collection Procedures

A qualitative approach in studying Socratic questioning is particularly valuable because it captures the nuanced and subjective experiences of participants. By employing methods like interviews, focus groups, or classroom observations, researchers can uncover how Socratic questioning influences learners' thought processes, engagement, and critical thinking development.

This approach allows for a deeper understanding of the contextual factors, such as teaching style, group dynamics, or individual learning preferences, that impact the effectiveness of Socratic questioning. The rich, descriptive data gathered can inform educators on best practices, ultimately enhancing the application of this method in fostering analytical and reflective skills in students.

Data were collected through a series of in-depth, one-on-one interviews conducted over five months. The interview protocol was guided by a 'Critical Thinking Rubric' specifically designed for the course, which included criteria such as clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness (Facione, 2011). The rubric of Critical Thinking was the existing measures developed by School of Business Management, College of Business, Universiti Utara Malaysia. Each interview aimed to identify the development of entrepreneurial skills and the enhancement of critical thinking abilities among the participants.

Using a critical thinking rubric as an existing measure is a solid approach to evaluate and develop students' analytical and reflective skills systematically. These rubrics typically provide clear criteria for assessing critical thinking, such as problem identification, reasoning, evidence evaluation, and logical conclusions. They ensure consistency and objectivity while also highlighting areas for improvement.

In the context of Socratic questioning or qualitative research, such rubrics can serve as a baseline to observe how participants progress in critical thinking abilities. For instance, educators or researchers can compare pre- and post-intervention assessments to measure the impact of Socratic dialogue on students' reasoning skills. This structured framework adds rigor to your study, while still leaving room for qualitative insights into participants' unique experiences and challenges.

The interview protocol consisted of open-ended questions designed to encourage reflective thinking and critical inquiry. Example questions included:

i. "Can you describe a situation during the course where you had to question an assumption?"

ii. "How did engaging in Socratic dialogue influence your ability to evaluate arguments?"

iii. "In what ways did the structured questioning process help you articulate your thoughts more clearly?"

Interviews were recorded and transcribed verbatim to ensure the accuracy of the data. Pseudonyms

were used to protect the confidentiality of the participants (Creswell & Poth, 2018).

### 2.4. Business Model Canvas (BMC)

The Business Model Canvas (BMC) was utilized to cultivate entrepreneurship skills and generate business ideas. The BMC is a strategic management tool that provides a visual framework for outlining the key components of a business model on a single page. Unlike traditional business plans, which can be extensive and detailed, the BMC simplifies the process of developing and testing a business idea through a concise, visual approach. Alex Osterwalder and Yves Pigneur introduced this method in their book, "Business Model Generation," and has become a vital tool for entrepreneurs seeking to understand and enhance their businesses' competitiveness and viability in their respective markets (Osterwalder & Pigneur, 2010).

Students were tasked with developing a business idea using the BMC template and will be evaluated on their achievement based on the rubric (Table 2). By leveraging Canva's online Business Model Canvas tool, students could create a structured framework to guide their entrepreneurial ventures. This approach is beneficial for various types of businesses, whether a retail store for an online brand or an emerging tech startup. It helps identify the factors that will sustain their business concept's competitiveness over time. Students were encouraged to select a template and customize the text boxes with their data, enabling them to assess their current stage in business development and plan for future growth.

The use of the BMC allows students and researchers to evaluate their progress and strategically refine their business models, ensuring they remain viable and competitive in the marketplace. The BMC's visual format aids in highlighting critical aspects of the business, such as customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structures (Osterwalder & Pigneur, 2010).

The Business Model Canvas (BMC) is a powerful tool for entrepreneurial development classes, as it provides a structured framework for students to conceptualize, design, and analyze business models. Its implementation in such classes has proven effective in enhancing students' entrepreneurial mindset and practical skills.

By using the BMC, students can visually map out key components of a business, such as value propositions, customer segments, revenue streams, and cost structures. This hands-on approach encourages critical thinking, creativity, and problem-solving, enabling students to better understand the complexities of running a business. Additionally, the BMC fosters collaboration and teamwork, as students often work in groups to develop and refine their business ideas.

Studies have shown that incorporating the BMC into entrepreneurship education improves learning outcomes and entrepreneurial intentions. It equips students with the knowledge and confidence to innovate and pursue business opportunities, making them more prepared for the challenges of the entrepreneurial world. Figure 3 summarizes the nine building blocks of a business according to an online source.

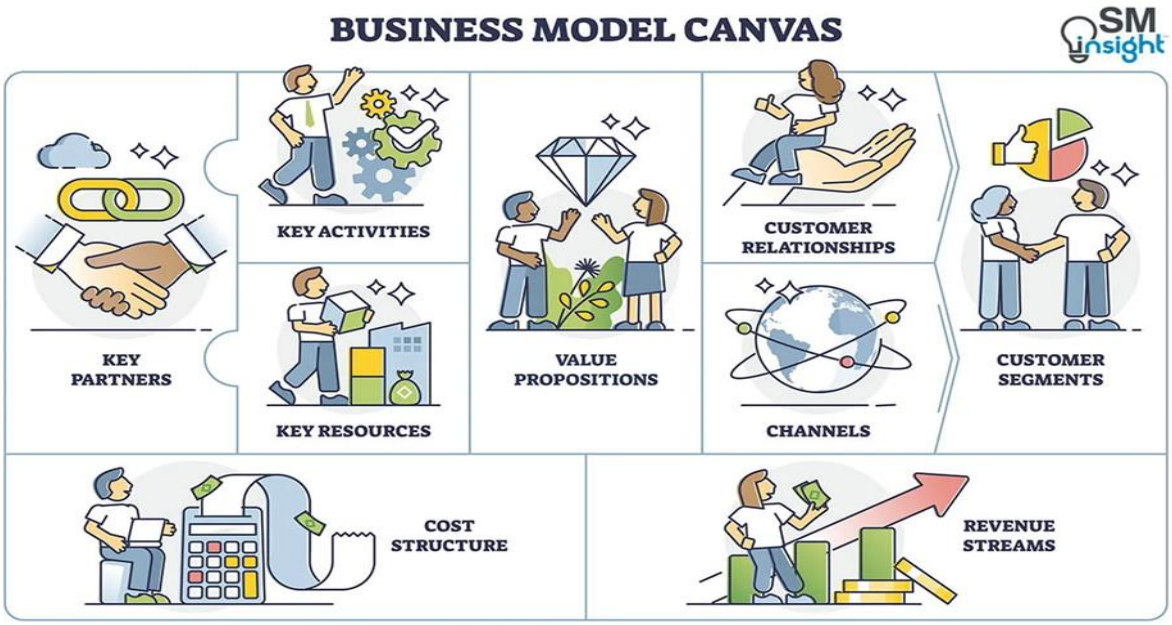


**Figure 3: Nine building blocks of a business (Source: Shutterstock)**

### 2.5. Data Analysis

Thematic analysis was employed to analyze the interview data. This method involved identifying, analyzing, and reporting patterns (themes) within the data (Braun & Clarke, 2006). To investigate how the Socratic dialogue fosters critical thinking among BPME6093 Entrepreneurial Development students at a Malaysian public university, we employed thematic analysis to address the following research questions:

1) How do BPME6093 Entrepreneurial Development students perceive the role of Socratic dialogue in facilitating or hindering their critical thinking?

2) To what extent does the Socratic dialogue help develop the students' critical thinking?

We began by transcribing interviews and focus group discussions with students, focusing on their perceptions and experiences with Socratic dialogue. Through familiarization with the data, we identified initial codes relating to students' views on the dialogue's effectiveness, challenges faced, and instances where critical thinking was demonstrated. These codes were then categorized into themes such as "Engagement and Interaction," "Cognitive Challenges," and "Skill Enhancement."

The theme of "Engagement and Interaction" revealed that students valued the dialogic nature of the Socratic Method, noting that it encouraged active participation and deeper reflection. However, the theme of "Cognitive Challenges" highlighted concerns about the difficulty and frustration some students experienced. Finally, the "Skill Enhancement" theme underscored the positive impact of Socratic dialogue on critical thinking development, with students reporting improved analytical skills and better argumentation.

Through this thematic analysis, we provided a nuanced understanding of how Socratic dialogue can both facilitate and hinder critical thinking, offering insights into its application in adult learning contexts.

### 2.6. Ethical Considerations

Ethical approval was obtained from the university's research ethics committee prior to commencing

the study. Participants were informed about the study's purpose, procedures, and their right to withdraw at any time without penalty. Informed consent was obtained from all participants. In accordance with the Declaration of Helsinki, ethical considerations were strictly followed to ensure the integrity and ethical standards of this study (World Medical Association, 2013). Confidentiality and anonymity were maintained throughout the research process by using pseudonyms and securely storing the data (Babbie, 2016).

## 3. Findings

The implementation of Socratic Dialogue within Malaysian public universities has fostered a transformative educational experience that extends beyond traditional pedagogical methods. Through this approach, students have not only honed their questioning and reflective thinking skills but have also achieved a deeper understanding of their subject matter. This iterative process of structured questioning has enhanced students' problem-solving abilities, fostering an environment that encourages active participation and critical evaluation of evidence. The following themes illustrate the significant impacts of this dialogue-based approach on the development of critical thinking skills among university students as shown in Table 3.

**Table 3: Findings of Focus Group Discussion**

| Theme | Description | Verbatim |
|---|---|---|
| Enhanced Questioning Skills | Students developed the ability to ask deeper, more meaningful questions that probed underlying assumptions. | " I feel challenged by the probing questions, it force me to think deeper to the assumptions that I have deep back seated in my mind" |
| Increased Reflective Thinking | Participants exhibited a higher level of reflective thinking, considering multiple perspectives and consequences. | " Not all the problem can be solve sequentially, so we start to think divergently and lateral thinking" |
| Deeper Understanding | The iterative questioning process led to a deeper understanding of subject matter and core concepts. | "We have to do the think aloud in order to answer series of questions, it makes us think a lot. As s result we are more clear what we are thinking about" |
| Enhanced Problem-Solving Skills | Through structured questioning, students improved their ability to develop logical solutions to problems. | "We need to breakdown from the problems into manageable bits an pieces, solve the problem one by one, some sequentially and some all at once like joining puzzle here an there ." |
| Engagement and Participation | Increased student engagement and active participation in discussions, fostering a collaborative learning environment. | "Our class room become very interesting not boring, not one way communication, we are adult we don't listen only we have a lot ideas to share from our work experiences, we questions each other" |
| Critical Evaluation of Evidence | Students became more adept at critically evaluating the validity and reliability of evidence presented. | "I don't take things at surface value, I will check the evidence referring to the primary source" |

### 3.1. Research Question 1: How Do Entrepreneurial Development Students Perceive The Role Of Socratic Dialogue In Facilitating Or Hindering Their Critical Thinking?

#### 3.1.1. Enhanced Questioning Skills

A common theme that emerged most of the participants' sharing is about their liking for Socratic dialogue is that students developed the ability to ask deeper, more meaningful questions that probed underlying assumptions: "*I feel challenged by the probing questions, it forces me to think deeper to the assumptions that I have deep back seated in my mind."* This is echoed by "*the probing questions compelling me to explore deeper thought, deeply ingrained in my mind. This process forces me to critically examine and reflect on my beliefs, leading to a more profound understanding and thoughtful consideration that shape my viewpoints."*

### 3.1.2. Increased Reflective Thinking

The second theme emerged is that participants exhibited a higher level of reflective thinking, considering multiple perspectives and consequences. "Not *all the problem can be solve sequentially, so we start to think divergently and lateral thinking*" …. "*Socratic dialogue fosters creativity and addresses complex challenges more effectively*, it *helps us see multiple ways, not one way solution"*

### 3.1.3. Deeper Understanding

The iterative questioning process led to a deeper understanding of subject matter and core concepts. "*We have to do the think aloud in order to answer series of questions, it makes us think a lot. As a result we are clearer what we are thinking about*" "

*"It is engaging in think-aloud exercises with a series of questions compels us to reflect deeply, enhancing our clarity and understanding. This process fosters critical thinking, allowing us to clear our thoughts more effectively and gain a better hold of our underlying assumptions and ideas. So, we achieve a more precise and coherent understanding of our thought processes".*

The Socratic Method could help students in gaining more confidence to speak when practising using this method. Effective or good communication skills goes beyond the ability in answering but also to understand the messages communicated to them (Albalawi & Nadeem, 2020).

### 3.1.4. Engagement and Participation

Another theme which emerged from the thematic analysis in this study is it makes learning experience more interesting. It increased student engagement and active participation in discussions, fostering a collaborative learning environment.

"*Our class room become very interesting not boring, not one way communication, we are adult we don't listen only we have a lot ideas to share from our work experiences, we question each other*"

"We *share experiences, this exchange makes the learning environment stimulating and interactive, allowing us to contribute and learn from one another effectively. It's a dynamic exchange, not merely a one-way dialogue. We are adult learners who knows more we questions more Socratic dialogues really suits us*. "

### 3.1.5. Critical Evaluation of Evidence

Students became more adept at critically evaluating the validity and reliability of evidence presented. "*I don't take things at surface value, I will check the evidence referring to the primary source*" …

"*Ha ha now even in my personal life when I received WhatsApp message in groups I will evaluate and questioned asking what is the underlying message , is the source authentic or*

*just some hoax passed around"*

### 3.2. Research Question 2: To What Extent Does the Socratic Dialogue Help Develop the Students Critical Thinking?

The initiative to foster critical thinking through Socratic Dialogue at Malaysian public universities has yielded significant insights. By evaluating various dimensions of students' development, we have identified key themes that highlight their progress in creativity, innovation, proactivity, synthesis, and risk tolerance. Each theme has been categorized and assessed on a scale from 1 (Below Basic) to 4 (Advanced), providing a clear picture of the levels achieved by the majority of students as shown in Table 4.

**Table 4: Findings of Critical Thinking Rubrics**

| | 1 =Below Basic | 2 = Basic | 3 = Proficient | 4 = Advance | Remarks |
|---|---|---|---|---|---|
| **Creativity** | Trying new ways of doing activities has not even been considered | Activities could be executed differently has been considered | Activities could be executed differently has been outline with some alternatives | Activities could be executed in a different way has been outlined with some alternatives to measure their efficiency. | Majority students achieved level 4 |
| **Innovative** | No ideas or innovative **solution** have been proposed | Some idea or innovative solution has been proposed but no specific process | Various ideas and solutions has been proposed and outline. | Various ideas and solutions has been proposed and the application process has been clearly outlined. | Majority students achieved level 4 |
| **Proactive** | Suitable contributions have not been provided | Some suitable contributions have been provided to tackle the problems | Suitable contributions have been provided and some ideas are good enough to tackle problems | Suitable contributions are provided to high quality level and correlated to existing situations and problems | Majority students achieved level 4 |
| **Synthesis** | New ways to make things have not been identified | A new way of doing things has been identified but lack of pros and cons | Two or more new ways of doing things have been described with some pros and cons | Two or more new ways of doing things are described and all the pros and cons are described | Majority students achieved level 3 |
| **Risk Tolerance** | No risks and benefits are identified in a limited way | As assessment is carried out to analyze the probability and potential consequences of each risk or benefit | A comprehensive assessment of risks and benefits are carried out | Risk and benefits are prioritized. | Majority students achieved level 3 |

#### 3.2.1. Creativity

Socratic dialogue significantly enhances students' creativity by encouraging them to consider alternative ways of executing activities. Initially, students may not even contemplate new methods, but through continual questioning and discussion, they begin to recognize the potential for different approaches. At the basic level, they consider that activities could be executed differently. Progressing to proficiency, students not only outline alternative methods but also suggest some options. At the advanced level, they outline multiple alternatives and measure their efficiency. The majority of students achieved the proficient level, demonstrating the dialogue's effectiveness in fostering creative thinking and problem-solving skills.

#### 3.2.2. Innovation

Innovation is another critical area where Socratic dialogue plays a pivotal role. Initially, students may not propose any ideas or innovative solutions. However, as they engage in Socratic questioning, they begin to propose some ideas, even if the processes are not yet clear. At the proficient level, various ideas and solutions are proposed and outlined. At the advanced

level, the application process for these ideas is clearly delineated. The majority of students reached the proficient level, indicating that Socratic dialogue encourages them to think innovatively and develop practical solutions.

### 3.2.3. Proactivity

Proactivity among students is markedly improved through Socratic dialogue. Initially, students may not provide suitable contributions to tackle problems. As they engage more deeply, they start offering some suitable contributions. At the proficient level, their contributions are good enough to address the problems effectively. At the advanced level, the contributions are of high quality, well-correlated to existing situations and problems. The majority of students achieved the proficient level, showing that Socratic dialogue cultivates a proactive approach to problem-solving and engagement with issues.

### 3.2.4. Synthesis

Socratic dialogue enhances students' ability to synthesize information and generate new ways of doing things. Initially, they may not identify any new methods. As they progress, they identify new ways but may lack a comprehensive understanding of the pros and cons. At the proficient level, students describe two or more new ways of doing things, including some pros and cons. At the advanced level, they provide a thorough analysis of all pros and cons for multiple new methods. The majority of students reached the proficient level, reflecting the dialogue's role in developing their synthesis and evaluative skills.

### 3.2.5. Risk Tolerance

The ability to assess and tolerate risk is crucial for critical thinking and decision-making. Initially, students may not identify risks and benefits comprehensively. Through Socratic dialogue, they start to assess the probability and potential consequences of each risk or benefit. At the proficient level, they carry out a comprehensive assessment of risks and benefits. At the advanced level, risks and benefits are prioritized, reflecting a nuanced understanding of their implications. The majority of students achieved the proficient level, indicating that Socratic dialogue enhances their ability to analyze and prioritize risks effectively.

## 4. Discussion

This study explored two fundamental research questions regarding the role of Socratic dialogue in developing critical thinking among entrepreneurial development students at Universiti Utara Malaysia. The findings shed light on students' perceptions and the extent to which Socratic dialogue enhances their critical thinking skills. The discussion also ties these findings back to Malcolm Knowles' Andragogy Theory, which provides a theoretical framework for understanding adult learning (Knowles, 1980).

The perceptions of students regarding Socratic dialogue are integral to understanding its impact on their critical thinking abilities. According to Knowles' Andragogy Theory, adult learners are self-directed and bring a wealth of experience to the learning environment (Knowles, 1984). This study found that students largely perceive Socratic dialogue as a facilitating tool for developing critical thinking. Through oral defense of their opinions and participation in sustained, free discussion, students are able to develop better self-images, which affects their motivation to learn (Kay & Young, 2010). They appreciated the iterative process of questioning and reflection, which compelled them to examine their assumptions and think more deeply about the concepts discussed.

### 4.1. BPME6093 Entrepreneurial Development Students Perceive Socratic Dialogue as Both Facilitating Their Critical Thinking

The perceptions of BPME6093 Entrepreneurial Development students regarding the role of Socratic dialogue are multifaceted and provide valuable insights into its effectiveness and challenges in fostering critical thinking. Based on the thematic analysis of the qualitative data, as stated by Schleicher (2012), the 21st century era requires people to think creatively and critically, solve problems skillfully, make important decisions, as well as communicate and collaborate in group activities. Several key themes emerged that highlight students' views on Socratic dialogue:

#### 4.1.1. Engagement and Interaction

Students overwhelmingly appreciated the interactive nature of Socratic dialogue. They reported that the method encouraged active participation, which contrasted with traditional lecture-based approaches where their role was more passive. The questioning technique inherent in Socratic dialogue compelled students to think deeply about the subject matter, articulate their thoughts, and engage in meaningful discussions with their peers. This engagement was perceived as a significant facilitator of critical thinking, as it required them to analyze, evaluate, and synthesize information rather than simply memorizing facts. The method hones the art of effective communication (Yazidi, 2023). When engaging in Socratic dialogue, participants must articulate their thoughts clearly and concisely.

#### 4.1.2. Cognitive Challenges

Despite the positive aspects, students also highlighted several cognitive challenges associated with Socratic dialogue. The constant questioning and requirement to defend their viewpoints often led to feelings of frustration and cognitive overload. Some students found it difficult to keep up with the rapid pace of questioning and felt pressured to provide immediate responses without sufficient time for reflection. The studies showed that students of higher education in Malaysia still have low and moderate levels of critical thinking, which resulted in lower employability (Fadhlullah & Ahmad, 2017). This challenge was particularly pronounced among students who were less confident in their critical thinking abilities or who were not accustomed to this type of interactive learning environment. While these challenges were seen as hindrances, some students acknowledged that overcoming these obstacles ultimately contributed to their cognitive growth and resilience.

#### 4.1.3. Learning Environment

The supportive learning environment created by Socratic dialogue was another theme that emerged from the data. Students valued the sense of community and collaboration fostered by this method. They felt that the open and non-judgmental atmosphere encouraged them to express their ideas freely and learn from their peers' perspectives. This collaborative environment was perceived as a key factor in facilitating critical thinking, as it exposed students to diverse viewpoints and prompted them to critically evaluate their own assumptions and beliefs. The positive effects of using Socratic questioning on students' critical thinking have been reported in many studies (Copelin, 2015; Edwards, 2019).

#### 4.1.4. Relevance to Real-World Applications

Students also perceived Socratic dialogue as highly relevant to their personal and professional development. They noted that the skills developed through this method, such as logical reasoning, effective communication, and problem-solving, were directly applicable to real-world scenarios. This perceived relevance increased their motivation to engage with the material and apply critical thinking

skills beyond the classroom setting. Students appreciated that the Socratic dialogue not only enhanced their academic performance but also prepared them for future entrepreneurial challenges. The Socratic Method serves as a powerful tool for self-discovery and personal growth. By guiding clients through a series of reflective questions, therapists encourage individuals to explore their emotions, beliefs, and motivations. This process of introspection can lead to greater self-awareness, emotional intelligence, and the development of coping strategies (Montazeri, 2022).

#### 4.1.5. Individual Differences

It is important to acknowledge that individual differences played a significant role in shaping students' perceptions of Socratic dialogue. Factors such as prior educational experiences, personality traits, and cultural background influenced how students responded to this method. For instance, students who were more extroverted and confident in their verbal abilities tended to thrive in Socratic dialogue, while introverted students or those with language barriers faced greater challenges. Understanding these individual differences is crucial for tailoring the Socratic dialogue to meet the needs of diverse learners. The Socratic Method places a premium on active listening. Participants must attentively absorb and process each question, responding thoughtfully rather than reflexively. This skill of attentive listening not only facilitates deeper comprehension but also nurtures empathy and respect for diverse perspectives (Dalim, 2022).

### 4.2. The Socratic Dialogue Significantly Enhances Students' Critical Thinking Skills

The extent to which the Socratic dialogue helps develop students' critical thinking can be assessed through various dimensions, including creativity, innovation, proactivity, synthesis, and risk tolerance. Through oral defense of their opinions and participation in sustained, free discussion, students can develop better self-images, which affects their motivation to learn (Kay & Young, 2010). The thematic analysis provided insights into how the Socratic dialogue influenced each of these dimensions.

#### 4.2.1. Creativity and Innovation

Socratic dialogue was found to stimulate creativity and innovation among students. By engaging in open-ended questioning and exploring multiple perspectives, students were encouraged to think outside the box and generate novel ideas. The method's emphasis on critical inquiry and reflective thinking fostered an environment where students felt empowered to propose innovative solutions and challenge conventional wisdom. This dimension of critical thinking was particularly evident in discussions related to entrepreneurial opportunities and problem-solving scenarios.

#### 4.2.2. Proactivity

The proactive nature of Socratic dialogue required students to take initiative in their learning process. Unlike traditional teaching methods where students passively receive information, Socratic dialogue demanded active engagement and self-directed learning. Students reported that this approach motivated them to take ownership of their education, seek out additional resources, and engage in continuous learning. The development of proactivity was seen as a crucial aspect of critical thinking, as it enabled students to independently evaluate and address complex issues.

#### 4.2.3. Synthesis

The ability to synthesize information from various sources and viewpoints was another critical thinking skill enhanced by Socratic dialogue. Through the iterative process of questioning and discussion, students learned to integrate diverse perspectives, identify underlying patterns, and construct coherent arguments. The method's focus on deep understanding and holistic thinking

allowed students to connect theoretical concepts with practical applications, thereby enriching their overall learning experience.

#### 4.2.4. Risk Tolerance

Socratic dialogue also contributed to developing students' risk tolerance by exposing them to uncertainty and ambiguity. The method encouraged students to take intellectual risks, express controversial opinions, and defend their viewpoints in the face of opposition. This experience helped students build resilience and confidence in handling complex and uncertain situations. The development of risk tolerance was particularly relevant to entrepreneurial education, as it prepared students to navigate the inherent uncertainties and challenges of the business world.

#### 4.2.5. Empirical Evidence

The extent to which Socratic dialogue develops critical thinking was also supported by empirical evidence from student assessments and feedback. Many students reported noticeable improvements in their analytical and reasoning abilities as a result of participating in Socratic dialogue. They demonstrated enhanced skills in identifying logical fallacies, constructing well-supported arguments, and critically evaluating evidence. These improvements were reflected in their academic performance, particularly in assignments and projects that required critical analysis and problem-solving.

#### 4.2.6. Long-Term Impact

While the immediate benefits of Socratic dialogue on critical thinking were evident, the long-term impact of this method requires further investigation. Some students expressed concerns about the sustainability of the skills developed through Socratic dialogue, particularly in contexts where traditional teaching methods predominated. To fully understand the extent of its impact, longitudinal studies are needed to track students' critical thinking development over time and in various learning environments

## 5. Limitation of the Study

While this study aimed to comprehensively assess the extent to which Socratic dialogue develops students' critical thinking, several limitations must be acknowledged. Firstly, not all dimensions of critical thinking, such as creativity, innovation, pro-activity, synthesis, and risk tolerance, were exhaustively explored. The scope of this research was limited by the available data and the specific context of BPME6093 Entrepreneurial Development students at University Utara Malaysia. As a result, the findings may not fully capture the broader spectrum of critical thinking skills.

Secondly, the study relied on self-reported data from students, which may be subject to bias or inaccuracies in their perceptions and experiences. This reliance on qualitative data, while providing rich insights, also poses challenges in ensuring the objectivity and generalizability of the results. Additionally, the study was conducted within a specific educational and cultural context, which may limit the applicability of the findings to other settings or populations. Further research is needed to explore the impact of Socratic dialogue on critical thinking in diverse contexts and with larger, more varied samples. Implications for Educational Practice

## 6. Recommendation for Educational Practice

Despite its benefits, the implementation of Socratic dialogue is not without challenges. Some students may struggle with the pace and intensity of questioning, leading to feelings of

frustration and disengagement. To address this, educators should offer additional support and scaffolding for students who face difficulties. Providing clear guidelines and expectations can also help students navigate the demands of Socratic dialogue. Furthermore, recognizing and accommodating individual differences is crucial for ensuring that all students benefit from this method. Tailoring the dialogue to suit diverse learning styles and backgrounds can enhance its effectiveness and inclusivity.

## 7. Conclusion

In conclusion, the Socratic dialogue plays a significant role in developing critical thinking among BPME6093 Entrepreneurial Development students. Its impact is evident through various dimensions, including creativity, innovation, and proactivity, synthesis, and risk tolerance. While the method presents certain challenges, its benefits in fostering critical thinking and preparing students for real-world applications are substantial. By addressing the identified challenges and incorporating best practices, educators can maximize the potential of Socratic dialogue as a transformative teaching tool in higher education.

Entrepreneurial development students perceive Socratic dialogue as a valuable tool for facilitating critical thinking. The dialogue encourages creativity, innovation, proactivity, synthesis, and risk tolerance—skills essential for entrepreneurial success. Aligning with Knowles' Andragogy Theory, Socratic dialogue supports self-directed learning and practical application, making it an effective pedagogical strategy in higher education. Despite potential challenges, its benefits in developing critical thinking are substantial, highlighting the need for its integration into educational practices.

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# LEGITIMATE PERIPHERAL PARTICIPATION IN DOCTORAL EDUCATION: A MALAYSIAN PERSPECTIVE

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## ABSTRACT

Legitimate peripheral participation (LPP) in doctoral education is considered as a form of peripherality among doctoral students from a novice researcher to becoming a scholar. Participation of doctoral students in various types of community of practice (CoP) facilitates this process. There is evidence that doctorate students are lacking in acquiring adequate professional knowledge and skills during their doctoral training. Hence, the aim of the study is to explore the level of LPP of doctoral students in CoP to explore how CoP facilitates the development of knowledge and skills towards the academic profession. The study also examined doctoral students' participation in doctoral practices within various learning contexts and their mode of engagement. The study employed a qualitative exploratory case study research design and interviewed ten doctoral students that met the set criteria via snowball sampling technique. The findings suggest that students' participation in various types of CoPs, regardless of their mode of engagement in CoP, enables them to gather specific knowledge and skills that would be applicable in the academic profession. Another finding shows that through LPP, doctoral students seek guidance and assistance in overcoming challenges in their doctoral practices within CoPs. Drawing on the theoretical framework of CoP, LPP among doctoral students were described in the form of core, moderate or non-participation. Doctoral practices within the CoPs include conducting lab experiments, learning research methodology and academic writing, among others. This article builds on previous research on CoP in doctoral education specifically in understanding the transition of doctoral students from a novice researcher to a scholar through LPP. Implications on theory and practice along with recommendations for future research were also mentioned.

**Keywords**: legitimate peripheral participation, community of practice, doctoral education, professional development

## 1. Introduction

In a social learning system, Wenger (1998) introduced the notion of participation and non-participation into a community in the form of 'peripherality'. This is referred to as either a small or non-full participation within the community. Theoretically, in the context of this study legitimate peripheral participation (LPP) in doctoral education presents a case of peripheral participation of a novice researcher moving towards full participation or an expert within the academic community, in which they would eventually become professional researchers or academicians.

The purpose of this study is to examine doctoral students' perspectives on their participation in a community of practice (CoP) that is used to foster knowledge and skills in the academic profession. Thus, to explore the relevance of 'peripherality' within doctoral education and to understand the notion of apprenticeship from a novice to a master at different levels of doctoral study. The informants in this study had issues with academic writing, conducting lab experiments, statistical analysis as well as understanding research methodology, to name a few. Previous research reported that CoP helped doctoral students overcome challenges in adapting to new academic and social environments (Wazni et al., 2021).

There are arguments on the lack of attention on professional socialization in doctoral education (Nerad, 1999) which refers to a process whereby doctoral students obtain knowledge and skills to successfully integrate into their selected professions (Weidman et al., 2001). Essential knowledge and skills required in doctoral studies include, to be research ready, whereby once graduated, doctoral students will be able to produce academic writing, perform statistical analysis, create scientific reasoning, acquire a wide and deep knowledge of literature and recent debates, and able to apply the latest technological tools in research (McDonald et al., 2015). However, the inability to meet these pre-requisites may lead to insufficient knowledge and skills of becoming a scholar.

Cui and Harshman (2023) indicates that existing training in doctoral education programmes may be insufficient in equipping students for a multifaceted role of academia. Findings of the study suggested that graduate programmes ought to provide more opportunities for students to enhance their communication, project management, as well as interpersonal skills. In addition, another study also reported that graduate students frequently face significant challenges, including limited peer interaction and gaps in communication and collaboration (Ray et al., 2019). Furthermore, Verostek et al. (2024) also found students favour to work in research groups as it would benefit the outcome of the student's doctoral journey.

Hence, this study aims to understand how each level of participation in CoP facilitates the development of knowledge and skills towards academic profession. Specifically, it investigates their engagement in various forms of CoP during different phases of their doctoral research. The focus is on how such participation helps them acquire essential knowledge and skills which would then contribute to their professional growth and transition into academic roles. Hence this article explores the level of participation and engagement within CoPs based on these research questions:

1) How is LPP explained in terms of doctoral students' levels of participation in CoP?
2) What types of doctoral practices influence CoP participation among doctoral students?
3) What other benefits do doctoral students gain from participation in CoP?

## 2. Literature review

### 2.1. Communities of practice in doctoral education

Prior studies (Jones et al, 2024; Verostek et al., 2024; Lahenius, 2012; Parker, 2009; Shacham & Od-Cohen, 2009) have highlighted the benefits of Communities of Practice (CoP) established among peers and advisors within the context of doctoral education. These CoPs provide doctoral students with opportunities to enhance their academic writing and reading skills while fostering professional growth as researchers. Clark et. al (2021) mentioned that participation in CoP managed to enhance professional development skills and knowledge not just among doctoral students alone but also doctoral supervisors and other faculty members alike. The support and collaboration of supervisors in research are found to be helpful towards preparing the students in their future profession in terms of academic productivity (Jones et al. 2024; Shen & Jiang, 2023).

Newswander and Borrego (2009) focused on journal clubs as CoPs for graduate students. Despite differences in focus, both Leshem (2007) and Newswander and Borrego (2009) identified three key benefits of CoPs: (1) discovering new knowledge within a specific practice, (2) fostering problem-solving skills and creativity, and (3) enhancing understanding of shared repertoires through peer collaboration.

According to O'Donnell and Tobell (2007), adults in higher education engage with various CoPs during their learning experiences, where the meanings from experiences in these environments can determine the success of their participation. For example, doctoral students attending conferences and seminars participate in CoPs where apprenticeship interactions between novices and experts allow them to acclimate to professional contexts (Roberts, 2021; Chapman et al., 2009; Coryell & Murray, 2014). During their doctoral studies, students engage in situated learning through various forms of practice and socialization processes, eventually progressing toward full membership in scholarly and professional communities. Orsmond et al. (2022) pointed out on how LPP through CoP framework helped graduate-entry medical officers and pave the way for professional identity formation.

However, there has been limited theorization of CoPs in doctoral education (Lahenius, 2012). Shacham and Od-Cohen (2009) similarly noted a less substantial amount of literature addressing CoPs in postgraduate learning. This highlights the need for further exploration of CoPs within the context of doctoral education to emphasize the significance of CoP and its utility as a form of support. Furthermore, the existing literature also highlights a gap in understanding the LPP regarding the development of doctoral students' skills and knowledge towards their future academic profession.

### 2.2. Peer Support in Doctoral Education

CoPs in doctoral education often take the form of writing and reading groups or discussions focused on research methodologies and practices (Logue-Conroy et. al, 2021; Verostek et al., 2024; Lahenius, 2012; Parker, 2009; Shacham & Od-Cohen, 2009). Shacham and Od-Cohen (2009) further noted that engaging in collective research through CoPs not only promotes interaction among students but also reduces feelings of isolation. The tendency for attrition becomes greater and the doctoral practice becomes challenging with an absence of a research group journey (Verostek et al., 2024). Similarly, Wisker et al. (2007) explored doctoral student

cohorts that fostered peer support and collaboration to address challenges related to doctoral work.

Additionally, Janson et al. (2004) observed that CoPs initially established for doctoral work evolved into forums for sharing emotional challenges associated with doctoral studies, helping students to mitigate isolation. Leshem (2007) examined cohort-based CoPs, where "communal tutorial discussions" were implemented at different stages of doctoral studies to aid in understanding and developing conceptual frameworks.

## 3. Theoretical framework

### 3.1. Communities of Practice

Communities of Practice (CoP), introduced by Wenger and Lave in 1998, is rooted in a social theory of learning. This concept builds on the theory of situated cognition, which emphasizes learning knowledge and skills within contexts that mirror their real-life applications (Collins, 1989). Through interaction and participation in a social context, learners become actively engaged in a CoP (Lave & Wenger, 1991). Emphasizing activities within a community, CoP is a social theory of learning that assumes that "engagement in social practice is the fundamental process by which we learn and so become who we are" (Wenger, 1998).

In doctoral education, CoPs are recognized as informal learning communities outside the classroom, where they have proven effective in fostering collaboration and skill development (Shacham & Od-Cohen, 2009; Lahenius, 2012). CoPs are integral to doctoral education, grouping students into social learning systems that foster knowledge sharing through research within scholarly communities. Lahenius (2012) defined scholarly communities as "multiple relationships that result from the pursuit of shared scholarly interests and endeavours, providing the context for learning through certain social practices" (p. 29).

### 3.2. Legitimate Peripheral Participation (LPP)

Lave and Wenger (1991) expanded the idea of apprenticeship within situated learning into Legitimate Peripheral Participation (LPP). This concept focuses on how newcomers gradually integrate into a community of practitioners, evolving from novices to experts through sociocultural practices.

Based on the LPP framework, participation of doctoral students varies from newcomers or the apprentices to graduating doctoral students or the masters. New members start by engaging in peripheral tasks and gradually gain legitimacy and acknowledgment through their contributions. Collaborative learning enhances this process, as sharing ideas with others is central to effective learning. LPP aligns well with doctoral education, where students become acculturated to academic research through interactions with peers and supervisors. Supervisors play a critical role in guiding students toward active participation in disciplinary research communities while peers are seen as another form of support mechanism within the doctoral journey.

Wenger (1998) highlighted that identity is shaped by our ability to engage with and contribute to our communities, stating, "Our identity includes our ability and our inability to shape the meanings that define our communities and our forms of belonging" (p. 145).

Hence, Wenger (1998) further explained that CoP consists of three dimensions namely mutual engagement, shared repertoire and joint enterprise. Mutual engagement refers to the

interaction within the community that results from shared practices. Roles and relationships emerge from the engagement of members from various ethnicities, ages and gender. Shared repertoire, on the other hand, refers to the signs, symbols, tools and language that members share, which has a specific meaning within the community. Finally, joint enterprise is seen as a negotiated response from its members in terms of community goals and conditions. These interconnected dimensions allow its members to progress from peripherality to full participation in the CoP, should the members opt to do so.

In reference to the study, mutual engagement refers to doctoral students' interactions in CoPs within its shared repertoire of doctoral practices (i.e. lab experiments, academic writing) based on the expectations of doctoral education and its practices, as the joint enterprise.

## 4. Methodology

### 4.1. Research Design

The study uses qualitative inquiry to gain insights from the experience shared by the informants. Through in-depth interviews, this research approach was able to gather in-depth understanding of the experience and perception of the students. A qualitative inquiry allows the researcher to obtain detailed and rich information about participants' real-life experiences (Creswell, 2003).

This qualitative inquiry is based on an exploratory case study research design where ten doctoral students were interviewed from various faculties and at various stages of their doctoral study. The study examined doctoral students' levels of participation in CoP towards the development of knowledge and skills relevant to the academic profession.

One of the main characteristics of an exploratory case study is flexibility whereby researchers may adjust their research approach as well as data collection methods as new discovery of information emerges. This allows for a more organic and deeper understanding of the case. Therefore, exploratory case study should not depend on a framework that could influence the interpretation and lead the interviewer to frame informant's views within the researcher's own theoretical schemes (Kvale, 2006).

### 4.2. Informants

The informants of this study consisted of ten full-time doctoral students enrolled at one selected public research university in the Klang Valley, Malaysia. There were 3 male and 7 female students in total, where six of them were from the Science discipline and four remaining students were from the Social Science discipline. Each informant was chosen based on the set criteria of being a full-time doctoral student at the university and aspire to become an academician once the student graduated. The study adopted a purposive and snowballing sampling technique in its data collection. Some of the informants were contacted via recommendation from other participants in the study and some were recommended by their own doctoral supervisors.

The students were at different stages of doctoral study and different fields of study. This is done to have a more varied and rich data in terms of their unique experience participating in a community of practice. However, the lived experience of the doctoral students in this study may not represent other doctoral students in general.

There are obviously differences in terms of the students conduct their research based on their fields of study. The social science or humanities students are generally trained by doing

literature reviews, writing, and attending seminars, whilst engineering students are inclined to be given more tasks and simulations of past experiments (Hasrati, 2005).

The details of each participant in the study are presented in Table 1.

**Table 1. Participants of the Study**

| Participant | Country of Origin | Faculty | Field of Study | Current Semester | Gender | Age |
|---|---|---|---|---|---|---|
| Ahmed | Yemen | Engineering | Electrical Engineering | 3 | Male | 32 |
| Sonia | Malaysia | Educational Studies | Human Resource Developmen | 11 | Female | 49 |
| Hisham | Malaysia | Food Science & Technology | Food Science | 12 | Male | 46 |
| Mazlin | Malaysia | Educational Studies | Psychology | 5 | Female | 32 |
| Rose | Thailand | Agriculture | Agriculture Business | 2 | Female | 33 |
| Atilia | Malaysia | Medicine & Health Sciences | Nutritional Sciences | 7 | Female | 39 |
| Yasmin | Malaysia | Ecology | Developmental Psychology | 3 | Female | 30 |
| Asri | Malaysia | Engineering | Mechanical Engineering | 3 | Male | 24 |
| Rina | Malaysia | Medicine & Health Sciences | Psychological Medicine | 3 | Female | 37 |
| Sally | Malaysia | Food Science & Technology | Food Science | 13 | Female | 44 |

### 4.3. Data Collection

Each informant was given an information sheet regarding the study along with a consent form for the student to sign as evidence agreeing to participate in the study voluntarily. The first round of the interviews was conducted using a semi-structured interview protocol, and the second round of the interviews was conducted via e-mail correspondence.

Below are examples of questions in the interview protocol for physical and via e-mail correspondence:

#### 4.3.1. Interview Protocol:

Definition of CoP in Professional Development:

i. At which phase of your study and which level of learning environment (i.e. unit/faculty/discipline/personal) were you involved in groups that facilitates your doctoral study and encourage professional development as future academician at the same time?
ii. Within those groups, what kind of activities that you participated in that contribute towards developing your professional skills? i.e. presentation skills, supervision skills, grant writing, people management etc.
iii. Why do you feel that there is a need to participate in related doctoral activities introduced by a certain group?

#### 4.3.2. Examples of questions via email correspondence to informants:

i. Through your personal experience as a doctoral student, at which stage do you think the community will be most helpful and why?

ii. What kind of knowledge and skills within the academic profession (examples as given above in question no.1) were you able to develop during your PhD study here?

The data collection was put to a stop once the data reached a saturation point and it ended up with 10 informants. All interviews were then transcribed and analyzed using the Nvivo.

### 4.4. Data Analysis

Data analysis was conducted and guided based on Braun and Clark's (2006) six steps in thematic analysis were applied as well as NVivo Plus 12 software to facilitate documenting and categorizing the data gathered.

#### 4.4.1. Thematic Analysis

Thematic analysis "is a method for identifying, analyzing and reporting patterns (themes) within data" (Braun & Clark, 2006). The analysis follows a step-by-step process of familiarizing with the data, generating initial codes, searching for themes, reviewing the themes, defining and naming the themes and finally, producing the report.

Therefore, the analytical process of this study initially identified codes from the interview transcripts which are separated into two groups of disciplines namely Science and Social Science in order to identify the differences in responses. Once the initial codes are gathered, revised and categorized accordingly, they are then developed into themes at the semantic level. This is done beyond describing the interview responses to focus on interpreting and explaining the meaning behind the words gathered from the interviews. The themes were reviewed several times and later the final report of the thematic analysis went through a process of peer review for validation purposes.

#### 4.4.2. Quality, Rigour and Trustworthiness (Reliability and Validity)

In ensuring quality, rigour and trustworthiness, qualitative research requires methods. This study adopted data triangulation, informant validation (member checking) of the interview transcripts, audit trail and peer review.

## 5. Findings

Based on the first research question, the outcome of the study unveiled the level of participation and engagement of the students based on the involvement of the students in communities of practice which facilitated their doctoral journey. The levels of participation are categorised in three levels, namely core participation, moderate participation and non-participation.

### 5.1. Levels of participation

#### 5.1.1. Core participation

This form of participation is considered active, involving consistent engagement and fostering connections with other members in a CoP. Active members typically take the initiative to start and sustain communication within the group.

In reference to the CoP framework, based on the three dimensions of CoP, the peripherality in terms of core participation of a doctoral student, firstly showed active mutual engagement, whereby the doctoral students made the time and effort to participate in the community. Secondly, shared repertoires were visible, for example their doctoral study progress, activities for self-development and self-motivation as well as other research related matters. Finally, the

main joint enterprise is generally the cooperation that these students received from the members within the doctoral study community.

Atilia exemplified such participation in her CoP. She explained how she actively contributed and felt comfortable and motivated to engage with the community without any sense of awkwardness. Reflecting on her experience, Atilia stated, "We feel we are not alone, and we feel that we can share what we know, and we can ask what we don't know without feeling awkward."

Similarly, Sonia identified herself as an active participant in her CoP. She described her role as an 'instigator,' where she took the lead in initiating discussions within the group through social media. She said,

*But then we tend to discuss in WhatsApp group yeah… I do initiate certainly, but I would not say everything. But then when it came to semester six – when I had different groups, I will be the instigator of initiating and always try to get all these people to come together and discuss and meet and progress in their PhD.*

Hisham, a Food Science doctoral student, is another active member of a CoP which consists of members that were not from the same university. Hisham was already an academician by profession at one of the local private universities before he enrolled in doctoral study at the university. Hisham shared his views on the CoP he participated in,

*…for being an academician… it's part of me that when you do something good, you don't keep it to yourself – you need to share it with someone else. So, when I started with this special interest group, SIG not SIT, Special Interest Tourism. When I started this, I mentioned to them, we need to meet regularly despite of whatever ups and downs that we are having or despite of whatever problem that we are having… uhm it's not because for own's benefit… for everybody's benefit in the group. And this SIG or Special Interest Group – we are not uhm… elevating uhm…one's motivation for them to study or further study or to finish their study only but it's beyond that. It's more on the… how you develop character... personality… to… to...what we call that… to improve their teamwork.*

As for Sally, her active participation in a CoP was during her thesis writing stage. She considered her supervisor as one of the members in her CoP along with her other doctoral study colleagues from other faculties at the University. Sally explained,

*I also frequently visit my Professor before he retired to talk and probably discuss about my concern regarding my PhD. I visit him probably quite often. Sometimes just to listen to his advice really motivate you to not give up…This group that I involved help me a lot in enhancing my knowledge. Sometimes reading other students problem give you (the) idea on how to go about (doing) the research so you don't face the same problem…especially when you (are in the) writing up stage… this group help you a lot…*

Finally, Yasmin, a Development Psychology doctoral student in her third semester said she found it to be helpful to be involved in a CoP. She was also a research assistant at the faculty. The CoP she participated in include her supervisor, her research assistant colleagues, other faculty members and other doctoral students from different faculties. Yasmin maintained almost daily meetings with some of her CoP members. She said,

*Whenever we meet up… we will brainstorm (on doctoral research matters) … we meet several times. Even when we go for lunch, we brainstorm… we will seek each other's opinions and if no solution is derived, I will usually bring it up to my supervisory committee …*

### 5.1.2. Moderate Participation

Moderate participation refers to members of a CoP who engage at a moderate level. These members do not typically initiate discussions or activities but still contribute and remain valuable to the group.

As for moderate participation, its mutual engagement was not as frequent as compared to core participation. Hence, the doctoral students still managed to stay connected with other members of the community. Shared repertoires include activities held in the courses they enrolled in, lab experiments and other related matters on their current doctoral research. Joint enterprise were visible through responses from other doctoral students in the faculty, course mates and other postgraduate students in the same research area.

For example, Mazlin described her level of involvement as moderate within the WhatsApp group of a CoP she participated in which was initiated by a faculty member.

*It would be easier if we meet each other, face to face, I can be active… depends on active members there. But if in the WhatsApp group, I am hesitant. I don't know, I am just the type… who doesn't like to type I guess (laugh)…everybody does voice notes right? But that is the thing, …I prefer to have it face to face, it would be easier.*

In the meantime, an international doctoral student from Thailand, Rose, considered herself a passive member of the CoP. She participated occasionally and felt more comfortable engaging only after building familiarity with other members of the community. Some of the members in her CoP were in the same class. Hence, her communication and participation with the rest of the members was via WhatsApp. Most of the time the engagement takes place virtually. However, she found that communicating with different members in the CoP, required a different approach due to their different academic backgrounds. Rose stated,

*Oh… 80 percent WhatsApp… And we can only meet face to face (in) the class. Aaa…but for the …in the study part, in the class, can talk and can share with them, it's okay… and okay I think I go back my home and think. I am thinking something and then uhm…then WhatsApp them. Something I start or something just a chit chat… I have to …organize and select. How can I talk to them. This one like this…how can I talk with this one. Aaa…so, because they are different background. I have to prepare myself…how can I connect with them. Another is like a very young girl…just graduate from the Bachelor (degree). So, they are taking Master's (degree) so how can I connect them and how can I gain new experience and knowledge from them? Another is he is a very experience …more experience, so how can I get some information from them. That I created in the group.*

Meanwhile, as in the case of Ahmed, he found that by occasionally participating in a CoP at a research center in the faculty, helped him to discover and learn new knowledge and skills. Ahmed opined,

*Yeah, you need people to help you - or some time, you can join other people to help them in your work even (if) it is not related. For example, someone came here to do some stuff so maybe you go and see how he do this. Maybe you just join him and ask him to help, if he need your help and just see how he do things. So, then later when you reach that stage of doing experiment or doing your things, you have little bit idea. I mean just don't sit and just watch. Yeah, maybe you need to participate in maybe in something that is not related to you. Even you can make connection as well…, usually I am not the only one who receive the information. Sometimes even when you go there, you'll find someone who will ask you and you have to teach them and you discuss with them. I mean you give your information. Something like give and receive. It's not like you just take, take, take. Sometimes it's like you exchange roles. I*

*mean like, seniors you'll take information, but juniors, they will ask you from there they come here and they ask for my help. Sometime, like maybe teach them …like we have clean room here – how to do fabrication and stuff.*

Another case to mention would be Asri, an Engineering doctoral student who was also categorized as a CoP member with moderate participation. The CoP included his supervisor, co-supervisors and a couple of other international doctoral students who were in the same research project. His engagement with other members of the community was minimal. However, his participation in the CoP was mainly physical meetings with the supervisors and occasionally with the other students. Asri said, "We have a common WhatsApp group but I hardly use it". He opted to communicate with the members individually.

However, Asri has another separate CoP which consisted of his other fellow postgraduate students. He found the group to be helpful and so, he engaged with the community more frequently. Asri stated,

*I share with my colleagues...my friends who are here. There is a student community… postgraduate community. I am very close with them, especially with Master's students…I share and exchange ideas... like how to manage this thing (research project)…*

### 5.1.3. Non-participation

In a CoP, non-participation is also recognized as a form of participation, characterized by the member's presence in the community without actively engaging. According to Wenger (1998), non-participation does not imply exclusion from the community but suggests that participation naturally occurs through their presence within the social context.

As for a non-participant, there was hardly any form of mutual engagement. However, the shared repertoire would be their doctoral research work and joint enterprise was other doctoral students for the same university and other doctoral students elsewhere.

In this study, Rina, a doctoral student in psychological medicine, identified herself as a non-participative member of a CoP that was available to her. She acknowledged that her involvement in the CoP was minimal. The group primarily comprised fellow doctoral students from the same course during the early stages of her studies. Although Rina maintained her presence in the CoP's WhatsApp group, she chose not to engage actively. Her case was considered a single negative case analysis. Reflecting on her experience, Rina shared,

*(I am) Not the most active… I think the most active (almost) viva already… Okay…like me, (when) I think I need my time but I think I, I would be more…I know when… when I should not be alone and then I reach out…*

Rina generally preferred working independently rather than in a group, which is why she was categorized as a negative case in this study. However, she acknowledged that being part of a community could help her monitor the progress of her doctoral studies. Reflecting on this, Rina stated, "Having a group would have provided me with a tangible reference with regards to my performance, for example, whether I am lagged behind or I am on the right track."

She further explained that, while she valued the benefits of a community, she preferred minimal interactions and less frequent meetings among its members.

*I like the fact that because, we don't get to meet up to often, and usually we don't talk much in the WhatsApp group anyway, but the fact that we know they are there…so when you have a problem you know who you can ask on that specific question that you have…*

### 5.2. Types of Doctoral Practices in CoPs

All informants clearly mentioned doctoral practices that emerged from the data. Here are some examples of them, explained under respective themes:

#### 5.2.1. Collaboration and Knowledge Sharing

Ahmed, a foreign doctoral Engineering student from Yemen, who was in his third semester reported saying that discussions were held whenever he met with other members of the CoP who are currently doing doctoral study. He mentioned that,

*"we discussed about research – what you did, what did you publish… Sometimes we have some workshop…and we do have a workshop... usually about higher research impact…on publication, how to publish and how to send and how to respond to reviewer"*

#### 5.2.2. Skill Development and Mentorship

Ahmad also said he became a part of a research community at the faculty whereby he managed to gather advice and guidance on how to conduct his lab experiments. He had also able to acquire materials for his lab experiments through this community;

*that's the thing, you have more connection. Other group from there also if I need some things like procedure or protocol or something – I just go there.. Other people there, they have the same material. They don't use it anymore or they take what they want and then they just keep it. So you just take what you need and you can use it. No need to buy new.*

Yasmin, on the other hand, had the opportunity to develop her skills and knowledge in data analysis within her community of practice at the faculty. Her community include, the faculty members, her colleagues as well as her fellow doctoral students at the faculty. Notably, she eventually became a reference point for others to come and seek help regarding statistical analysis for their research.

*…there are people who invite me to give a workshop... workshop on basic SPSS. How to key-in data, to analyze simple-simple statistics… and then during my PhD, one of the Associate Prof. Dr. R also invited me to assist him in giving ... training in research methods for IRB officials.*

#### 5.2.4. Academic Writing and Publication

Similarly, with Sonia, her community encouraged her to write publication required for her doctoral degree. She also managed to help other members in her CoP in terms of academic writing for publication;

*…so I pretty much helped on their publication…reading and understanding and changing. Because when I read their publication, they are beside me. So, when I asked – what is the content. We pretty much discussed and correct everything for them. That's one thing that motivated me to do my publication as well. So, it was not difficult to do publication when I read theirs …*

Meanwhile, Sally said the CoP she participated in, enabled her to develop the knowledge and skills towards becoming a scholar. She opined,

*I learn a lot on how to write a paper, how to publish, how to manage time and such. I also learn how to communicate better in writing and in speaking. I learn speak effectively and how to think critically. Since we are doing a lot of data analysis and discussion be able to think critically is critical to us.*

#### 5.2.5. Progress Monitoring and Feedback

Ahmed and Sonia also shared their experience whereby CoP they participated in, facilitated in ensuring the progress of their doctoral study. Ahmed was quoted stating that, "… the people in the next lab, usually we gather some time together. Just share okay, have you done your progress report, have your done your presentation… how was your supervisor". Sonia added that the members of her CoP shared their progress with each other,

*…So these people were forms of motivation, we discussed in the group – there were six of us, it's multiracial and we were competing among each other in a healthy way where we will update each other on what we were doing…they were also motivating where we have updates about each other's progress, and we share…*

### 5.3. Other Benefits from Participation in CoP

Findings have showed that through the LPP within doctoral students' involvement in CoP, offered other benefits to students during their doctoral journey. These are the themes that emerged based on the results:

#### 5.3.1. Motivation and Peer Support

Based on the data gathered in the study, CoP has found to be the source of motivation and peer support for its members. Sally for one, agreed that doctoral study could be taxing on certain occasions and therefore, she found that CoP was one of the reasons why she kept remains determine to complete her doctoral study;

*I also learn how to handle my stress with this group. I think this group keep me grounded and sane.Most of the time you feel down and tired and ready to give up but your group keep you going…*

Similarly, Sonia also opined those other members of her CoP motivated her and at the same time created a sense of positive competition among them;

*So these people were forms of motivation, we discussed in the group – there were six of us, it's multiracial and we were competing among each other in a healthy way where we will update each other on what we were doing… if there are any questions and they will also guide me on how to actually leverage on statistics itself or on other aspect of education.*

#### 5.3.2. Promote a Sense of Belonging

There is also evidence that CoP enable to promote sense of belonging within the doctoral education context and subsequently helped to avoid the feeling of isolation among doctoral students. Asri believed that being a part of a CoP becomes crucial,

*…(If) we isolate ourselves from this community, we will have a kind of… when we are facing a problem, a critical problem we will be like "Eh, how do we do this?" So, when we have found with this group, we discuss. We will come out with new ideas on how to tackle the problem when we conduct research, so it really feels very compulsory…*

Sally had a similar view as Asri, she mentioned that the community helped her to not feel lonely. She said,

*…my group of friends are the type of friends that never turned you down if you have a problem. They help you, they sometimes nagged at you but most of the time they willing to listen to your nonsense. I think I'm lucky enough to find a group of students that together we learn, we fight and be comfortable with each other. The journey of my PhD is not lonely with this group of students that I have my confidence with …*

### 5.3.3. Character Building

Another advantage gained through participation in CoP was the ability to build the character of doctoral students in terms of staying motivated, resilience and persistent in carrying out the duties within doctoral study. For instance, Hisham viewed CoP as a community that is more than just being academically oriented. He opined that the CoP he participated in helped to develop the members' character. He said, the discussions they had in the CoP were as such:

*we are discussing about anything relating to the spiritual part… uhm… how to push another person to another level, you know? Based on the motivational spiritual teamwork… one's motivation for them to study or further study or to finish their study only but it's beyond that. It's more on the… how you develop character... personality… to… to...what we call that… to improve their teamwork…*

## 6. Discussion

The findings, based on the derived theme of participation and engagement, highlight Wenger's (1998) concept of legitimate peripheral participation occurring across various domains and learning environments. Whether at the core, moderate, or non-participation levels, the journey from novice to mastery unfolds through a range of doctoral practices such as conducting lab experiments, mastering research methodologies, and engaging in academic writing.

Hence, Wenger (1998) describes participation as "mutual ability to recognize meaning" (p. 56), emphasizing that true participation happens when members of a community share an understanding of meaning and identity. Roberts (2021) said that socialization in doctoral practices eventually transform towards a scholarly identity in their respective fields. In the context of this study, all informants as doctoral students are considered as legitimate peripheral participants regardless of their field of study since they are still novice researchers and have yet to master scholarly skills. Ranging from second semester, right up to thirteenth semester these doctoral students were mostly full-time students registered at one public research university, who aspire to become academic professionals once they graduated. For them to be selected for this study, they would have participated in at least one CoP during their doctoral study.

The aim of the study is to examine doctoral students' perspectives on their legitimate peripheral participation via CoP that is used to foster knowledge and skills in the academic profession. Therefore, the study opted to have a wide range of doctoral students at different phases of their study consisting of Science and Social Science fields, to provide rich experience and gather a variety and deeper insights in their CoP involvement. For example, more advanced phase doctoral students offer a more professional perceptions on the importance of acquiring necessary skills within academic profession as compared to the junior ones, who are more focused on participation of CoP based on courses they enrolled in. These experiences may serve as a guide for future doctoral students in CoP, where they can make the most of their doctoral study preparing for their future academic careers.

The extent of participation corresponds to the individual's level of expertise within the CoP. Core participants are considered experts, while even those on the moderate level of participation or even non-participants remain connected through socialization process within the doctoral students' CoP. As Wenger (1998) notes, "Even drastic isolation…is given meaning through social participation" (p. 57). The way students engage within CoP depends on how frequently and in which manner they interact, which Wenger (1998) termed as "mutual engagement."

The findings further demonstrate that the students met physically on campus, engaged in group discussions, attended supervisory meetings, collaborated in study sessions at the library, and attended casual gatherings at their usual eateries. However, digital platforms also play a role, with some students maintaining their participation through WhatsApp groups. These virtual spaces allow for continuous communication and collaboration, ensuring that the group remains active, members stay connected and engaged. According to Dubé et al. (2005) CoP which initiated in a physical setting has now evolved with technological advancement and so, many has opted for virtual CoP (vCoP) when it comes to interacting with others. Through vCoP, an expert or a scholar can reach more novice researchers to transfer knowledge, create network among fellow doctoral students and cultivate innovation (Thoma et al., 2018). Therefore, vCoP serves as an opportunity for shared learning (Yarris et al., 2019).

Another result to this study illustrates the types of doctoral practices that influence participation in CoP which includes in the form of supervisory meetings, research groups, self-development group as well as a coursework group. These are categorised into their respective themes namely, collaboration and knowledge sharing, skill development and mentorship, academic writing and publication and progress monitoring and feedback. Therefore, the practices respective of their fields of study included conducting lab experiments, understanding academic writing and research methodology, attending academic courses and discussing progress of doctoral study. Engagement of doctoral students in research groups and meaningful discourse among members of the community within a structured activities could enhance their doctoral research experience (Ahmad et al., 2023). Subsequently, these practices enable to facilitate the development of knowledge and skills towards the students' future academic profession.

The findings also showed other benefits of participating in CoP. These finding are explained in three main themes namely, motivation and support, sense of belonging and character building. Results showed that being part of CoP promotes the sense of belonging and not to feel isolated. Other benefit included the ability of CoP towards developing doctoral student's character and personality along with other members of the community, specifically towards better teamwork. Hence, this exemplifies and becomes parallel with the previous research that indicated on how participation in CoP contributed to scholarly development, peer support, friendship, and a sense of belonging to a community to overcome isolation (Ahmad et al., 2023; Lahenius, 2012; Lasig et al, 2013)

## 7. Limitation

The data gathered from this study does not represent the experience and perceptions of doctoral students in general. However, the findings demonstrate the experience gathered from doctoral students' participation in CoP in one public research university in Malaysia which can be of reference to postgraduate students' management in Malaysia or elsewhere.

The second limitation is the fact that as a single researcher and within the limited time to conduct the research, the study is limited to one public research university in the Klang Valley rather than opting for all public research universities in Malaysia. Meanwhile, another limitation of the study is that it focuses on the participation of doctoral students at different stages of their doctoral study hence, socialization experience may vary depending on the academic activities the students participated in. One student's experiences at one stage of their study cannot be generalized to the experiences of another student at a similar stage.

## 8. Implications and Recommendations for Future Research

This study underscores some theoretical and practical implications regarding LPP in doctoral education through various communities of practice (CoPs). Theoretical implications include emphasizing on LPP as a significant process in doctoral education. It highlights how LPP facilitates the transition from a novice researcher to an expert within CoPs by encouraging skill development, identity formation, and professional growth. Besides that, by understanding how CoP becomes a praxis in doctoral education particularly in the context of Malaysian doctoral education, where engagement with CoPs influences students' socialization into academic profession. Finally, theoretically the findings show the emerging social and digital context in terms of participation among doctoral students in CoPs. The dual roles of physical and virtual CoPs in fostering academic development, suggests that virtual CoPs (vCoPs) may bridge gaps caused by isolation in doctoral journeys.

In reference to the first research question on how LPP is explained in terms of doctoral students' levels of participation in CoP, the results indicated that levels of participation in CoP differ in terms of purpose based on the field study and phase of study. Therefore, theoretically, formation of effective CoPs ought to be given attention by department, faculties and universities during in the initial phase right up to the final phase of doctoral study based on the current doctoral practices' requirements. For example, more emphasis ought to be placed upon professional skills towards the end of their doctoral study. However, throughout the doctoral journey, non-academic related issues, i.e. character building and spiritual enhancement, may also be an element to be focused on within CoPs among doctoral students

Meanwhile, in terms of practical implications, CoP serves as a form of support system for doctoral students, therefore developing and maintaining a variety of CoPs within postgraduate community at the faculty or university level may greatly contribute to fostering doctoral students' academic and professional growth and consequently alleviate the sense of isolation commonly faced by doctoral students as indicated in the findings of the study. A subsequent practical implication is the role of supervisors and peers in doctoral education are seen as instrumental in supporting students' LPP. Organized group activities, regular supervisory sessions, and collaborative research initiatives may strengthen engagement and facilitate knowledge and skill development. Another implication in practice includes the flexible participation in CoP within the doctoral education journey. By recognizing varying levels of participation (core, moderate, or non-participation) in CoPs helps tailor interventions to accommodate individual needs and preferences in developing their knowledge and skills.

Based on this study, some recommendations for future research include exploring on how LPP manifests in CoPs cross culturally across different cultural and academic environments. This could possibly provide new perspectives on CoP as the praxis in doctoral education. In the meantime, since the results indicated that mode of mutual engagement among doctoral

students also came in the form of virtual communication (i.e. Whatsapp) therefore, this shows, the application of vCoPs seems to be applied extensively in higher education context at present. Following that, it seems appropriate to investigate the role and effectiveness of vCoPs in fostering doctoral students' academic and professional growth. This could eventually help to expand and develop integrated frameworks combining CoP with modern technological tools to address gaps in physical engagement. Thirdly, to conduct longitudinal studies in tracking students' participation in CoPs from their novice stages to becoming experts whilst identifying key turning points within their professional socialization. Finally, other suggestion based on this study includes establishing more CoPs that caters to the need of doctoral students that could provide professional development opportunities for doctoral students toward academic and non-academic professions.

## 9. Conclusion

In the context of doctoral education, CoPs encourage students to engage with diverse research communities, develop their academic identities, and foster a sense of belonging. This engagement leads to a more meaningful and enriching doctoral experience, enabling students to thrive as members of scholarly and professional communities. Hence, this study underscored the importance of participation in CoP in preparing doctoral students with professional skills and knowledge regardless of their stage of study.

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# THE RELATIONSHIP BETWEEN EMPLOYMENT PREPARATION AND EMPLOYMENT COMPETITIVENESS OF COLLEGE STUDENTS IN CHINA

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## ABSTRACT

Employment is fundamental to individuals' livelihoods and significantly influences China's long-term development, social stability, and harmony. The attainment of full employment for the workforce has emerged as a significant metric of a nation's economic success and the welfare of its populace. Many college students prioritize their grades excessively, concentrating on academic performance while overlooking the enhancement of their ideological, moral, and comprehensive abilities, resulting in a deficiency of significant core competitiveness in the job market. This study sought to examine the correlation between employment preparation and employment competitiveness of college students in China. This research was structured as a quantitative correlational study employing the survey method for data collecting. A collection of instruments with three evaluative sections with 32 items by Demographic Information, Employment Preparation Survey and Employment Competitiveness Survey are utilized for the study to 955 respondents. The data underwent statistical methods including descriptive analysis, Pearson correlation analysis, and ANOVA, and independent samples t-test to examine the study themes and hypotheses. This study identified a substantial correlation between employment preparation and employment competitiveness and explored whether the employment preparation of college students is affected by demographic factors. The findings of this study will augment the theoretical framework linking employment preparation and employment competitiveness. This study provides insights to the government for formulating employment policies and aids college students in improving their competitiveness in the labor market.

**Keywords:** college students, employment preparation, employment competitiveness, higher education, employment policy

## 1. Introduction

In 2021, there were 9.09 million college graduates, reflecting a year-on-year increase of 350,000. In 2022, this number rose to 10.76 million, marking a year-on-year increase of 1.67 million. By 2023, the total reached 11.58 million, with a year-on-year increase of 820,000 (Ministry of Education China). Consequently, it will require considerable time for the job market to absorb such a substantial influx. The employment of college students has emerged as a significant social issue of considerable significance in contemporary economic development. China's transition from elite to mass higher education has increasingly afforded young individuals the opportunity to pursue advanced studies; however, the resultant demand for employment and the pace of economic development have made it challenging for employers to generate adequate job opportunities in a short timeframe (Leigh, 2024). The disparity between the current employment scenario and the supply of college students remains significant. Employment is being prioritized.

Statistics from the Ministry of Education indicate that the employment rate for regular college graduates has stabilized at approximately 50%, with half of college students unable to secure job annually. Many college students do not even know the current employment situation, or even how to improve their employment competitiveness (Liu et al., 2024). In 2022, the State Council and the Ministry of Education promulgated several pertinent policies, documents, and methodologies regarding employment, including the Notice on Further Enhancing the Employment and Entrepreneurship of College Graduates and Other Young Individuals, as well as the Notice from the General Office of the State Council on Fortifying the Employment of Graduates from Universally Acknowledged Higher Educational Institutions, in addition to numerous local provincial and municipal documents, university publications, and addresses by officials. This indicates that the hiring of college students is increasingly esteemed by the Party and the State. This study will conduct a systematic investigation focusing on college students' employment preparation, employment competitiveness, and their interconnections, aiming to offer significant theoretical and practical insights for the Chinese government in formulating employment policies, for higher education institutions in providing employment guidance, and for students to enhance their employment competitiveness. The specific objectives of this investigation are as follows:

1) To identify the relationship between employment preparation and employment competitiveness of college students in China.
2) To explored whether the employment preparation of college students is affected by demographic factors.

Thus, the research questions are as follows:

a) Is there a relationship between employment preparation and employment competitiveness of college students in China?
b) Is the employment preparation of college students is affected by demographic factors?

The study hypotheses are as follows:

H1: There is a significant relationship between employment preparation and employment competitiveness of college students in China.

H2: Employment preparation of college students is affected by demographic factors

The employment of college students is linked to the sustainable and healthy advancement of higher education, the immediate interests of the public, the execution of the strategy to

enhance national strength via talent, and social harmony and stability. The investigation and resolution of the employment issue is especially pressing. Nevertheless, there is a paucity of research regarding the primary determinants influencing college students' employment and the correlation between college students' employment preparation and employment competitiveness in the job market. This study examines the correlation among the college students' employment preparation and employment competitiveness. It aims to systematically investigate these issues to offer a scientific foundation for the Chinese government in formulating employment policies, assist colleges and universities in providing employment guidance, and enable college students to enhance their employment competitiveness.

Consequently, given the prevailing dire job landscape, college students must maintain clarity of thought, acknowledge the work circumstances, and conduct a comprehensive study of their own qualifications; students should endeavor to enhance their employability; preparedness for employment confers a distinct competitive edge. This represents the pressing demands of the contemporary work landscape for college students, as well as the crucial factor in addressing the issue of college employment.

## 2. Literature Review

### 2.1. Employment Preparation

NACE (2022) describes employment preparation as the essential process of cultivating the key competencies required to prepare college-educated individuals for success in the workforce and the management of lifelong careers. Employment preparation encompasses the competencies necessary for individuals to secure, maintain, or progress in employment (Conley, 2012). In recent years, schools have encountered escalating expectations from industry and government to ensure that students possess employable skills and are prepared for the labor market (Mahon, 2022).

This study aims to examine the dimensions of employment preparation according to the six correlates of employment preparation identified by Qikai (2010). The first component is self-perception, which entails introspection, wherein one contemplates own desires, identifies inherent strengths, and discovers individual interests. Goal planning entails identifying professional objectives, systematically categorizing job aspirations both vertically and horizontally and establishing the targets to pursue, the trajectory of employment, as well as the geographical area of employment. Career knowledge structure refers to the necessity for students to thoroughly acquire professional knowledge and proactively comprehend the developmental trajectory of their field and the building of career-related expertise. Social practice experience pertains to students' capacity to engage in diverse college and class activities, oversee student organizations, serve as class officers, or possess part-time employment experience. Employment policy information pertains to students must consistently access internet resources to remain informed about work opportunities, gather insights from educators, and attend relevant lectures, thereby maximizing their understanding of employment policy information and strategy. The final component, employment strategy, pertains to students must carefully consider the needs of the job market, as well as understand the employment policies of relevant countries and grasp the current domestic employment situation.

Contemporary graduates encounter a fiercely competitive entry-level employment market, as businesses across all sectors seek "job-ready" candidates. There exists an implicit expectation that graduates would engage in all aspects of their education during their studies, rather than solely focusing on attaining a final grade (Spanjaard et al., 2018). Employment preparation

should not be confined to the final year of college but should be integrated throughout the entire academic experience. Preparation for employment occurs not only during the final academic year of college but throughout the entire course of education. From the perspective of content and requirements, the employment preparation of college students primarily encompasses psychological readiness, comprehensive quality and skill development, which further includes foundational qualities and skills, professional competencies, and specialized abilities.

Employment preparation serves as a fundamental basis for exhibiting essential core competencies that adequately equip college graduates for success in the workplace and ongoing career management (Webber et al., 2024). Employment preparation has eight dimensions: fundamental skills, cognitive abilities, personal attributes, resource allocation, interpersonal competencies, information literacy, systems administration, technology (Espinosa, 2023). Employment preparation comprises three essential skill domains: academic skills, employability skills, and technical skills. Academic talents refer to the capacity to utilize fundamental academic knowledge in practical contexts, including professional environments and everyday life. Employability skills are essential competencies required for the 21st-century economy (Butler, 2024).

### 2.2. Employment Competitiveness

Fugate et al. (2004) and Liu (2017) define employment competitiveness as an individual's capacity to recognize and seize professional chances both within and beyond the company during their career. Xu and Gao (2008) asserted that the employment competitiveness of college students denotes an ability developed via the holistic cultivation of professional knowledge and practical skills during their academic tenure. This capability not only enables individuals to achieve their career aspirations and satisfy employer requirements but also facilitates the recognition of their societal value via competition.

Zhou (2022) identified four key components of employment competitiveness to evaluate its dimensions. Ideological and moral quality refers to the consciousness of responsibility, professional dedication, teamwork, and employment concepts. Job skills include interpersonal skills, communication and expression skills, teamwork skills, learning and innovation skills, comprehensive application of knowledge, hands-on skills, organization and management skills, analysis and problem-solving skills. Psychological quality can be reflected in frustration tolerance, adaptability and trial mentality. professional technical includes professional knowledge, professional skills, information literacy and scientific research ability. Ideological and moral quality, job skills, psychological quality belongs to the quality and ability outside the profession, also known as "non-professional quality".

Employment competitiveness refers to graduates' capacity to outshine peers, navigate job challenges, and secure appropriate positions that reflect and actualize their value, specifically their ability to fulfill societal and employer demands for talent during the job selection process (Lu & Li, 2020).Employment competitiveness, as defined by the International Labor Organization, refers to the capacity of individuals to secure and retain employment, advance in their careers, and adapt to changes in their professional circumstances (Jiang et al., 2017).

Employment competitiveness refers to an employee's possession of talents that are in demand and seen appealing by the labor market and employers (Pan, 2022). Employers assess not only the individual knowledge, skills, and character of college graduates amidst intense employment competition, but also the alignment between the objectives of talent development in higher education institutions and societal demands, as well as the efficacy of diverse

educational strategies and methodologies employed by these institutions to achieve their talent cultivation goals (Mengxue, 2022).

### 2.3. Career EDGE Employability Model

Researchers use the Career EDGE employability model to conduct empirical research on work and employability because it supports the clarification of the determinants of employability. This model focuses on the development of students in higher education. There is evidence that Career EDGE has advantages over other models, namely USEM, the course provider model and Skills for Employment (Wujema et al., 2022), in terms of complex problem solving and research support.

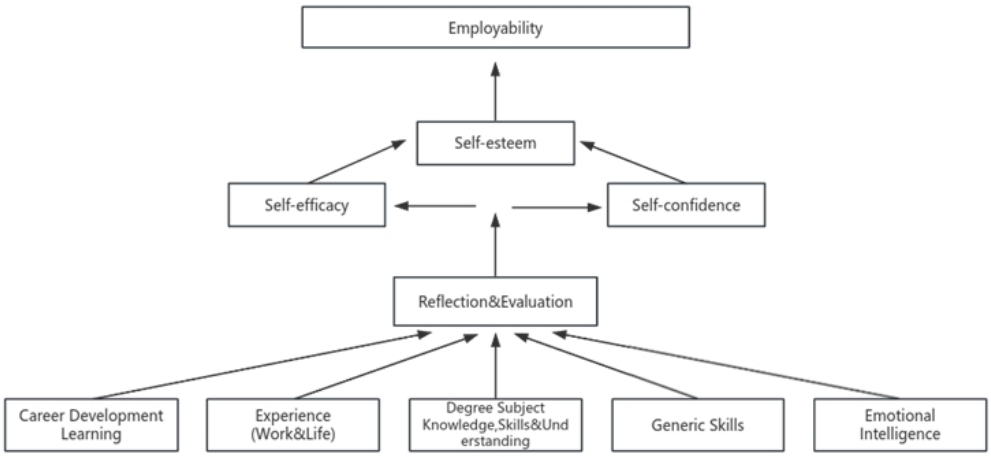


**Figure 1: The Career EDGE Employability Model**

According to the Career EDGE theory, the original lower part includes five level indicators: career development learning, work and life experience, knowledge and skills, general skills and emotional intelligence. It was combined with the upper level of "self-esteem, self-confidence and self-efficacy" and merged into the personal quality level one indicator, which consists of six level one indicators in total. After collecting and organizing the indicators, a team of experts was organized to delete the energy scale and determine the initial employment competitiveness survey during this group discussion. Employment competitiveness includes four dimensions which are ideological and moral quality, professional technical, job skills, psychological quality.

### 2.4. Demographic factors

Demographic factors pertain to individual characteristics, including age, gender, academic performance, and residence background (Oanda & Akudolu, 2010). A significant positive correlation exists between the demographic factors of college students and their employment preparation, particularly as students with superior personal qualities demonstrate improved employment preparation, greater adequacy in employment preparation, and heightened competitiveness in the labor market. Student leadership, policy information preparation, and residential background significantly influence employment chances, accounting for 19.9% of the explanatory variance (Qikai, 2010).

Gender is a significant demographic determinant of employment for graduates (Artess et al., 2008).The study revealed that male graduates typically have a favorable income disparity and

superior employment opportunities relative to their female counterparts (Artess et al., 2008). Foreign language proficiency has been identified as a critical factor influencing graduate employability (Dabalen et al., 2001). Lim (2010) noted that strong English language ability confers a significant advantage in university studies, job applications, positively influences employment rates, and diminishes the duration of unemployment. Demographic factors in this study included gender, academic performance, residence background, foreign language proficiency, student leadership experience and scholarship status.

### 2.5. Research Framework

The research would be better understood if the conceptual framework accurately represents the established constructs. The examination and comprehension of the relationship between variables will contribute to the advancement of theories and knowledge, which is the primary objective of any research endeavors (Bagobiri et al., 2015). This study's framework illustrates the relationship between the dependent variable (Employment Competitiveness) and the independent variable (Employment Preparation) concerning demographic factors. It is based upon the influence of employment preparation to determine the degree of employment competitiveness. Figure 2 explained the research framework of the study.

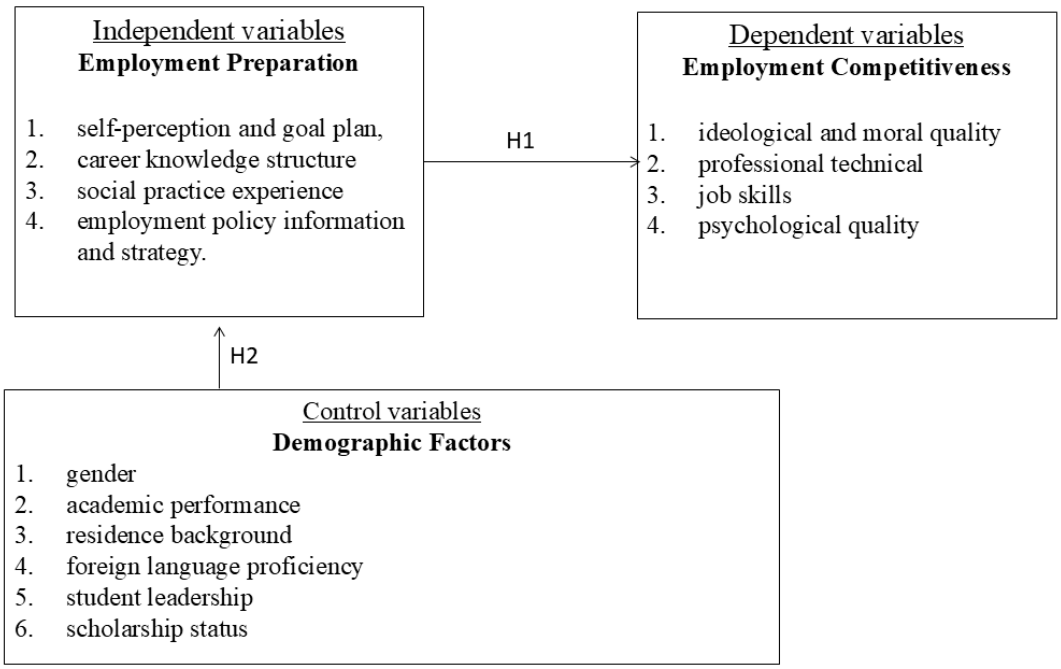


**Figure 2: Research Framework**

## 3. Methodology

### 3.1. Research Design

This study employed a correlational research strategy for quantitative analysis. Quantitative research is employed to address inquiries regarding the links among measured variables to elucidate, forecast, and regulate occurrences. Correlational research allows researchers to evaluate the nature and extent of the relationship between independent and dependent variables without manipulating them (Moshood, 2021). It is descriptive as it produces data that may be employed to delineate the variables under investigation.

This study mainly employs a questionnaire survey method. The employment preparation

questionnaire is derived from Qikai (2010) instrument, whereas the dimensions of employment competitiveness are based on the Career EDGE model. A total of three experts conducted an evaluation using the Delphi method and developed the employment competitiveness questionnaire based on their feedback. SPSS 26.0 was used to assess reliability and validity, conduct exploratory factor analysis, and perform T-tests on the data.

### 3.2. Population and Sampling

An important step in obtaining an appropriate sample size was to identify the study population. The study population was college students from the top three universities in Guizhou province, mainly junior and senior students. Before the formal survey, pre-test screening questions were conducted on a small sample of 50 students and finally formed a compiled a formal questionnaire and conducted a survey on 1002 college students. 955 valid questionnaires were collected, with an effective recovery rate of 95.3%.

The selection technique employs stratified random sampling, a type of probability sampling. Probability sampling guarantees that each element possesses an equal likelihood of selection (Talebloo, 2015). In this study, a proportionate stratified random sample was used. Furthermore, Ary et al. (2013) stated that the sample in a stratified random sample can be selected of the same size in each subgroup. The researchers chose top three schools to comprehensively represent the entire district. The stages of the sampling process are described below:

i. The experts identified the three leading schools in Guizhou Province. The objective is to disseminate 1,000 questionnaires, with each school distributing 334 questionnaires. 3 multiplied by 334 equals 1002.
ii. Two hundred thirty-four students were randomly chosen from each school to participate in the survey.

### 3.3. Research Instrument

The questionnaires were distributed to college students in Guizhou Province through printed paper copies and the online Questionnaire Star App. The questionnaire was used as a tool for data collection. The questionnaire consisted of two parts. The first part covered the demographic data of the respondents, including gender, academic performance, residence background, foreign language proficiency, student leadership experience and scholarship status. The second part contained two questionnaires. the two surveys assessed variables related to college students' employment preparation survey and employment competitiveness survey questionnaire.

Employment Preparation Survey is used to measure EP variables. 16 items were utilised to gather data on the employment preparation, as developed by Qikai (2010).

The instrument covers six dimensions: self-perception, goal planning, career knowledge structure, social practice experience, employment policy information, and employment strategy. The factor analysis was redefined into four dimensions respectively as career knowledge structure, self-perception and goal planning, salary status and family background, and social practice experience.

The Career EDGE theory adopted in this study originates from a foreign context and has been relatively underexplored in domestic academia, existing questionnaires could not be directly applied. Therefore, a process of localization was necessary to adapt the questionnaire for this study. The construction of this part of the scale mainly adopts the survey and statistical

methods. The literature was analyzed and organized based on a comparison of existing literature. Through group discussion and expert group demonstration, Delphi questionnaire was issued, collected and SPSS26.0 statistical analysis was carried out. Employment competitiveness has 10 items and includes four dimensions which are ideological and moral quality, professional technical, job skills, psychological quality.

Employment Preparation Survey and Employment Competitiveness Survey consisted of 26 items and used a 5-point Likert scale ranging from 1 (very poorly matched) to 5 (very matched). All elements on the scale were positive and using a range from "1= very poorly matched ", "2= poorly matched ", "3= Neutral ", "4= matched " and "5= very matched ".

### 3.3.1. Reliability of the Instruments

In the present study, Cronbach's Alpha (α) serves as a reliability metric to evaluate the instrument's dependability. Reliability analysis is conducted by assessing the internal consistency and stability of items categorized under a specific factor. A Cronbach's Alpha coefficient nearing 1 signifies enhanced internal dependability of a research instrument. Researchers often consider an alpha of .7 to be the minimum acceptable coefficient alpha (Hair et al., 2017). A reliability coefficient nearing 1.0 denotes enhanced perceived reliability, indicating superior internal accuracy (Suresh & Chandrashekara, 2012).

Reported in Table 1, Employment Preparation has six dimensions, all exceeding .70 in reliability, except for career knowledge structure and social practice experience, which exhibit moderate reliability. The four dimensions of Employment Competitiveness all score .90 or higher, indicating that the questionnaire items in this study are well-constructed and that the study possesses substantial practicality.

**Table 1: The Result of Reliability Test for Employment Preparation and Employment Competitiveness**

| Variables | Cronbach Alpha |
|---|---|
| **Employment Preparation (EP)** | .903 |
| **EP- self-perception** | .825 |
| **EP- goal planning** | .711 |
| **EP- career knowledge structure** | .673 |
| **EP- social practice experience** | .667 |
| **EP- employment policy information** | .810 |
| **EP- employment strategy** | .845 |
| **Employment Competitiveness（EC）** | .735 |
| **EC-Ideological and moral quality** | .958 |
| **EC-Professional Technical** | .962 |
| **EC- Job skills** | .933 |
| **EC- Psychological quality** | .963 |

### 3.3.2. Validity

Validity refers to the accuracy, relevance, and validity of the researcher's conclusions derived from the gathered data (Fraenkel et al., 2012). If the validity of an instrument is in question, it is not possible to interpret the data. To assess the efficacy of the created questionnaire in

accurately representing the issue, Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test can be employed to ascertain its appropriateness for factor analysis, with an evaluation of the questionnaire's validity.

The KMO value of the sample must be assessed to ascertain its suitability for factor analysis. The KMO value is considered appropriate for factor analysis if it exceeds 0.9; a number between 0.8 and 0.9 indicates strong suitability; a range of 0.7 to 0.8 suggests that factor analysis is feasible, while a value below 0.7 is deemed unsuitable for factor analysis. The importance of Bartlett's test of sphericity is assessed by determining if the p-value is less than 0.05; if it is, the test is deemed appropriate, and if not, it is unsuitable.

As can be seen from the following Table 2, the KMO value for the service quality scale is 0.948, indicating that the sample data is very suitable for factor analysis and has high validity. In addition, the significance probability of Bartlett sphere test is significantly less than 0.05, indicating that the sample data are relevant and suitable for factor analysis, and the validity is high.

**Table 2: KMO and Bartlett's test**

| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** | | **.948** |
|---|---|---|
| **Bartlett's sphericity test** | The approximate chi-square | 8466.72 |
| | df | 120 |
| | Sig | .000 |

### 3.3.3. Factor analysis

The principal component method was used to extract factors, and common factors that met the study's requirements were retained. As can be seen from Table 3, the 16 items were reduced to 4 dimensions by factor analysis, so the next analyses involved reclassification, defining A11-A22 as self-perception and goal plan, B11-B12 as career knowledge structure, B13-B22 as social practice experience, and C1-D3 as employment policy information and strategy.

**Table 3: Validity Analysis Results**

| Title | Factor loading | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| A11 I did a comprehensive analysis of my own advantages and disadvantages for employment | | .735 | | |
| A12 I have analyzed my interests and strengths for employment | | .772 | | |
| A13 I took personality tests and career orientation tests for employment | | .727 | | |
| A21 Determined their own career goals for employment, including employment direction and employment area | | .658 | | |
| A22 I made a detailed employment plan for employment | | .569 | .568 | |
| B11 Develop your ability to resist setbacks | | | | .761 |
| B12 Enhance my professional knowledge and skills | | | | .735 |
| B13 My major is in high demand and good employment in the job market | | | .741 | |
| B21 I got some training and experience in the club | | | .582 | |
| B22 I often work as a part-time intern in government enterprises or other units and have rich off-campus practical experience | | | .728 | |

| | | | | |
|---|---|---|---|---|
| C1 For employment often read the relevant national employment policy | .431 | | .682 | |
| C2 Analysis of the professional employment situation in the market for employment | .547 | | .469 | |
| C3 During the job hunting period, I actively participated in various job fairs or Internet recruitment | .739 | | | |
| D1 Before applying for a job, I carefully prepared a resume that could distinguish me | .748 | | | |
| D2 I learned about the etiquette of job hunting and some things to be aware of when applying for a job | .738 | | | |
| D3 I took the initiative to accumulate experience in interviews and written tests | .738 | | | |

### 3.4. Data Collection Procedure and Analysis

Information and research data were gathered from the respondents using questionnaires. Respondents who were undergraduate students at the chosen universities received the questionnaire via the online questionnaire star app and the paper version of the questionnaire. Prior to data collection, an application for permission to conduct research in each college was made. The contact information of the undergraduate students in each college was obtained. First, the researchers went to schools to distribute paper versions of the questionnaire to classes of college students. Some students in some classes have already gone to work as interns. We obtained the students' contact information by contacting the counselor and sent the link to the questionnaire APP via email for them to fill in. The survey was anticipated to require 20-25 minutes for completion. Furthermore, students were notified that their participation in this study was voluntary and that their replies would be kept anonymous and confidential. The data underwent statistical methods including descriptive analysis, Pearson correlation analysis, ANOVA, and independent samples t-test.

## 4. Findings

### 4.1. Demographic of Respondents and Descriptive Findings

This study distributed 1,002 questionnaires to university students in Guizhou Province, obtaining 955 valid responses, resulting in an effective response rate of 95.3%. Table 4 presents the demographic characteristics of these 955 students, including gender, academic performance, residence background, foreign language proficiency, student leadership experience, and scholarship status.

**Table 4: Summary of Demographic Information of the Respondents**

| Demographic variable | Profile | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 381 | 39.9 |
| | Female | 574 | 60.1 |
| Have you ever served as a student leader | No | 529 | 55.4 |
| | Yes | 426 | 44.6 |
| Have you ever received a scholarship | No | 402 | 42.1 |
| | Yes | 553 | 57.9 |
| Academic performance | Outstanding | 53 | 5.5 |
| | Good | 512 | 53.6 |
| | Medium level | 324 | 33.9 |
| | Not good | 58 | 6.1 |

| | | | |
|---|---|---|---|
| | Poor level | 8 | .8 |
| Residence Background | Province and city | 168 | 17.6 |
| | Counties and towns | 258 | 27.0 |
| | Countryside | 527 | 55.2 |
| | Deficiency | 2 | .2 |
| Foreign language proficiency | TEM-8 or above | 6 | .6 |
| | TEM-4 | 33 | 3.5 |
| | National level 6 | 72 | 7.5 |
| | National level 4 | 361 | 37.8 |
| | Below level 4 | 483 | 50.6 |

From the above Table 4, it can be seen that there are 381 male students, accounting for 39.9% of the total, and 574 female students, accounting for 60.1% of the total.

### 4.2. Relationship between Employment Preparation and Employment Competitiveness

The relationship's strength was assessed utilizing Cohen (1988). The scope of the understanding of the link is elucidated below.

r = -0.10 to -0.29 and +0.10 to 0.29 is rated as Low correlation;
r = -0.30 to -0.49 and + 0.3 to +0.49 is rated as Medium correlation;
r = -0.50 to -1.00 and +0.50 to +1.00 is rated as High correlation.

This study seeks to examine the correlation between employment preparation and employment competitiveness, employing the Pearson correlation test to evaluate hypothesis 1. Table 5 presents the correlation results among the test variables.

**Table 5: Correlation between Employment Preparation and Employment Competitiveness**

| Variables | r | p | Level |
|---|---|---|---|
| Employment Competitiveness (Y) | | | |
| self-perception and goal plan | .607** | .000 | high |
| career knowledge structure | .685** | .000 | high |
| social practice experience | .628** | .000 | high |
| Employment policy information and strategy | .631** | .000 | high |
| Overall | .532** | .000 | high |

**. Correlation is significant at the 0.01 level(2-tailed). Y=Dependent Variable Level.

Pearson correlation coefficient was applied to test the relationship between overall and sub-dimensions of employment preparation and employment competitiveness and the results reported that r=.532 (p=.000). This indicates that there is a highly positive correlation between employment preparation overall and employment competitiveness. Therefore, research hypothesis H1 is accepted. The employment preparation sub-dimensions are also highly positively correlated with employment competitiveness, with the highest being structure (r=.685; p=.000), followed by employment policy information and strategy (r=.631; p=.000), social practice experience (r=.628; p=.000) and finally self-perception and goal planning (r=.607; p=.000).

### 4.3. ANOVA and Independent Samples t-Tests on Differences in Employment Preparation Across Demographic Factors

Male students outperform female students in employment preparation, with a significance

value over 0.05 for the chi-square test. If only the effect of single factor of gender is considered, F is 8.98 and p is 0.003, since p is less than 0.05, it means that different gender has significant effect on the mean value of employment preparation (Table 6). The same ANOVA was used to derive a positive correlation between academic performance and employment preparation with a p greater than 0.05 for chi-square. If only the effect of single factor of academic performance is considered table F value is 12.50 and p is 0.000 since p is less than 0.05, so it shows that different academic performance have a significant effect on the mean value of employment preparation.

**Table 6: ANOVA Results for the Effects of Demographic Factors on Employment Preparation**

| Demographic Variable | Source of Variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Gender | Between Groups | 4.62 | 1 | 4.62 | 8.98 | .003 |
| | Within Groups | 487.34 | 948 | .51 | | |
| | Total | 491.96 | 949 | | | |
| Academic performance | Between Groups | 24.72 | 4 | 6.18 | 12.50 | .000 |
| | Within Groups | 467.24 | 945 | .49 | | |
| | Total | 491.96 | 949 | | | |

Additionally, Table 7 shows that the residence background significance P is less than 0.05 for non-uniformity. Welch's method P is 0.000, corresponding to a probability P-value of 0.000.If the significance level a is 0.05, the original hypothesis should be rejected that different regions have a significant impact on the mean value of employment preparation, since P is less than the significance level a. Brown-Forsythe's method P is 0.000 , corresponding to a probability P value of 0.000.If the significance level a is 0.05, since P is less than the significance level a, the original hypothesis should be rejected that different regions have a significant impact on the mean value of employment preparation, and that there is a significant difference between rural areas and provinces and cities, and between rural areas and counties and towns.

**Table 7: Bond Strength Test for Mean Differences**

| Demographic Variable | Sig | Statistic | Levene Statistics | DF1 | DF2 | Sig |
|---|---|---|---|---|---|---|
| Residence background | .019 | Welch | 8.15 | 2 | 399.05 | .000 |
| | | Brown-Forsythe | 8.20 | 2 | 548.28 | .000 |
| Foreign language proficiency | .009 | Welch | 21.29 | 4 | 32.94 | .000 |
| | | Brown-Forsythe | 19.35 | 4 | 60.38 | .000 |

a. Asymptotic F distribution

Using the same analysis of variance method, the foreign language level P is less than 0.05, which indicates non-uniformity. Welch method P is 0.000, which corresponds to a probability P value of 0.000.If the significance level a is 0.05, the original hypothesis should be rejected that there is a significant effect of different levels of English on the mean value of employment

preparation, since P is less than the significance level a. Brown-Forsythe Method P is 0.000, which corresponds to a probability P-value of 0.000. If the significance level a is 0.05, the hypothesis should be rejected since P is less than the significance level a. The hypothesis should be rejected that the level of foreign language has a significant effect on the mean value of employment preparation. Tables 8 and 9 show the independent t-test analysis of students' employment preparation by student leadership experience.

**Table 8: Group Statistics**

| | Have served | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Employment preparation | Unselected | 529 | 2.97 | 0.73 | 0.032 |
| | Selected | 426 | 3.26 | 0.68 | 0.033 |

**Table 9: Independent Samples T-test for Employment Preparation by Student Leadership Experience**

| Levene's Test for Equality of Variances | | | | t-test for Equality of Mwans | | | | |
|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig.(2-tailed) | Mean Difference | Std. Error Difference |
| Employment preparation | Equal variances assumed | 4.06 | 0.044 | 6.32 | 948 | 0 | 0.29 | 0.046 |
| | Equal variances not assumed | | | 6.37 | 927.68 | 0 | 0.29 | 0.046 |

An independent samples t-test was conducted to compare scores between whether students have been a student leader or not. Results indicated that those who have served (M =3.26, SD = 0.68) scored significantly higher than those who have not (M = 2.97, SD =0.73), p = .044, which is less than 0.05 (see Table 10 and Table 11). This indicate that there is a substantial difference between individuals who have served as student leaders and those who have not, as seen by the variance inequality being zero.

**Table 10: Group Statistics**

| | Have received | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Employment preparation | Unselected | 402 | 3.01 | 0.67 | 0.029 |
| | Selected | 553 | 3.29 | 0.75 | 0.038 |

**Table 11: Independent Samples t-Test for Employment Preparation by Scholarship Status**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Mwans | | | | |
|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig.(2-tailed) | M D | Std. Error Difference |
| Employment preparation | Equal variances assumed | 9.33 | 0.002 | 6.04 | 948 | 0 | 0.28 | 0.046 |
| | Equal variances not assumed | | | 5.93 | 800.53 | 0 | 0.28 | 0.047 |

An independent samples t-test was conducted to compare scores between whether students have received scholarships or not. Results indicated that those who have received (M =3.29,

SD = 0.75) scored significantly higher than those who have not (M = 3.01, SD =0.67), p = .002, which is less than 0.05, indicates that there is a substantial difference between those who have received scholarships and those who have not, as seen by the variance inequality being zero.

## 5. Discussion

This study sought to examine the correlation between employment preparation and employment competitiveness of college students in China. There is a significant relationship between employment preparation and employment competitiveness.

### 5.1. Relationship between Employment Preparation and Employment Competitiveness

Utilizing the Pearson correlation test to analyze the relationship between college students' employment preparation and their employment competitiveness. The results indicated a substantial positive link between employment readiness and employment competitiveness ($p<0.05$), with a higher degree of correlation seen (Qikai, 2010). The self-perception of employment preparation and employment policy information and strategy dimensions were moderately correlated with employment competitiveness ($r=.471$ and $r=.424$) respectively. The career knowledge structure of employment preparation was associated with employment competitiveness ($r=.049$) (T., 2009).

Every aspect of employment preparation positively influences all facets of employment competitiveness. There is a significant positive correlation between social practice experience under the specific dimension of employment preparation ($r=0.661$) and employment competitiveness. Although, social practice in employment preparation has the least impact on employment competitiveness, it is also high correlation with employment competitiveness (Jia, 2023). Consistent with the current findings, social practice experience is highly correlated with employment competitiveness

### 5.2. Employment Preparation Of College Students Is Affected By Demographic Factors

Employment preparation and employment competitiveness are all positively correlated with the demographic factors of participants, including gender, academic performance, residence background, foreign language proficiency, and student leadership experience and scholarship status. The juniors and seniors are the main objects of this survey. Although the majority of the respondents were female, male students outperformed female students in terms of employment preparation. In terms of employment preparation, students who have served as student leaders are better than those who have not. Similarly, those who have received scholarships are better prepared for employment than those who have not.

The correlation research reveals a significant relationship between college students' demographic factors and their overall employment competitiveness score. Gender, academic performance, and Residence background exhibit a negative correlation with employment competitiveness. The subject nature, whether the student is a student leader, foreign language level and employment competitiveness are significantly positively correlated (Qikai, 2010). Dodd et al. (2022) investigated the correlation between career advice interventions and employment preparation. The findings demonstrated that age exerted a substantial direct influence on employment preparation ($\beta = .1374$, $SE = .0683$, $p = .04$). Research indicates that

individuals become increasingly prepared for their careers as they mature. Parietti et al. (2016) investigated the employment preparation of student-athletes, emphasizing gender -based disparities. Female exhibited a markedly greater necessity for self-awareness. Moreover, this is significant as the study indicates that girls appear to lack confidence in their employment preparation and vocational competencies.

## 6. Implications of the Study

This research theoretically enhances the relevant theories concerning employment issues in China. Simultaneously, it employs literature analysis and questionnaire surveys to examine the characteristics of college students' employment preparation, employment competitiveness, and their interrelation, thereby broadening the scope of employment problem studies.

The investigation into college students' employment preparation, employment competitiveness, and their interrelation can assist graduates in understanding the mechanisms that elevate employment planning awareness, facilitate effective preparation, enhance competitiveness, and influence overall employability. This research also offers critical insights for improving employment competitiveness and holds significant practical implications for the advancement of employment promotion policies and guidance within Chinese higher education institutions. This is highly relevant for the development of employment promotion policies and initiatives, as well as for enhancing employment guidance in higher education institutions.

## 7. Conclusion and Recommendations

This quantitative study investigates the correlation between employment preparation and employment competitiveness. This study produces significant findings that address the knowledge and research deficiencies concerning employment preparation and employment competitiveness of college students in China. The research findings have resulted in the following conclusions: The results demonstrated that Pearson’s correlation analysis revealed favorable relationships between employment preparation and employment competitiveness. This research indicates that improved opportunities for students' employment preparation and higher employment readiness lead to increased employment competitiveness.

The results indicate that all four dimensions of employment preparation exhibit a strong correlation with employment competitiveness; however, the correlation between self-perception and goal plan and employment competitiveness is the weakest among the four dimensions. This suggests that students should conduct a thorough analysis of their vocational values and career orientation, as some college students do not adequately consider how to align their interests and strengths with their career planning. The dimension of career knowledge structure in employment preparation exhibits the strongest correlation with employment competitiveness, signifying a profound mastery of professional skills and a consistent high level of motivation to learn; the second highest correlation pertains to employment policy information and strategy. Students with high employment competitiveness are typically highly aware of the job market's supply and demand dynamics, possess a thorough understanding of pertinent national employment policies, and have conducted in-depth analyses of the industries or specific companies they wish to pursue. Furthermore, there is the experience of social practice. It is recommended that college students participate in club activities and off-campus internships while in school (King et al., 2021).

Comparative analysis of fundamental demographic factors indicates that college students with robust employment policy information and strategy typically also demonstrate excellence

across all domains. They have typically been student leaders, obtained scholarships, possess proficiency in foreign languages, and have outstanding academic success. Secondly, except for objective reasons such as gender and residence background which we cannot change, all other demographic factors are positively correlated with employment preparation. Therefore, college students can enhance their employment preparation through these attributes, and they should approach their studies with seriousness, focusing on the accumulation of knowledge and experience. Schools should provide comprehensive and effective training for college teachers and carry out comprehensive and effective employment guidance for college students, so as to change the concept of employment of college students, increase their employment initiative, prepare them for employment, and enhance their competitiveness in employment.

A potential limitation of this study is the adequacy of the measurement items for employment preparation and employment competitiveness. Although both constructs consist of four dimensions and a total of 26 items, the limited number of items per dimension may not be sufficient to fully capture the complexity of each component, potentially affecting the validity and depth of the findings. Lang (2009) suggests that the main factor restricting the employment competitiveness of college students in China is that China's industrial upgrading has not yet been completed, and that college students are in the downstream of the industrial chain for a long period of time, resulting in insufficient demand for college students' labor. Due to the limited time and energy, this study did not explore the influencing factors of college students' employment competitiveness from the perspective of economics.

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# INCULCATING FAMILY VALUES: EXPLORING TEACHING APPROACHES OF FINAL-YEAR PRE-SERVICE TEACHERS

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## ABSTRACT

Inculcating family values in students is a challenging task as it is both subjective and hard to quantify. The effectiveness of such efforts largely relies on the creativity of teachers in presenting the content in engaging and memorable ways. This study explores the teaching methods employed by final-year pre-service teachers to inculcate family values. This study utilizes a qualitative approach. Five pre-service teachers who taught family themes during their 14-week practicum were selected as respondents. The data for this study were gathered through semi-structured interviews. The interviews' transcription was analyzed using the Atlas.ti to create the theme. The results demonstrate that teachers employ a combination of teacher-centered and student-centered approaches when delivering content related to family values to their students. As inculcating family values is a subjective therefore applying hybrid teaching approaches might cater to diverse students' needs and learning styles. Additionally, this will successfully engage students and encourage a thorough comprehension of the subject so they can become responsible citizens in the future.

**Keywords:** Student-centered, teaching-centered, family life education, higher education.

## 1. Introduction

A family's interactions and behaviors are governed by a set of ideas and values called family values. These beliefs influence how members of the family view and navigate the outside world and are frequently passed down from generation to generation. At beginning, parents serve as the primary social agents responsible for fostering values in their children, as early childhood is spent mostly with family. The lessons learned and experiences gained during this foundational stage significantly shape a child's thoughts, attitudes, and character (Brutani, 2022).

In an era shaped by globalization and rapid technological advancement, the task of nurturing family values has become increasingly complex. Challenges such as media influence and changing societal norms underscore the need for educational strategies that instill empathy, respect, and responsibility in students. Societies can address issues like moral decline, intergenerational gaps, and social fragmentation by placing a strong emphasis on family values. These also brought about changes in the understanding and practice of family values and their interconnectedness (Rahman & Sayed Uddin, 2017). This will have both positive and negative impact on the overall well-being of a families, especially on student academic achievement.

Education plays a crucial role in instilling values in young minds (Malik, 2019). Schools are not merely center for academic instruction but also serve as essential environments where students develop their social, emotional, and ethical competencies (Khan, et al., 2023). Values education, in particular, aims to foster a sense of humanism, shaping individuals into responsible and empathetic members of society (Bhatt, 2018) as well as contribute to society through good citizenship and ethics (Vidhya, 2021). As Sahin (2019) notes, values are not innate but can be taught and learned through deliberate efforts. For today's youth, practicing family values daily is vital for cultivating responsible family members and promoting a harmonious home environment. Educators, because of their significant role, are crucial in helping students to adopt and guiding students to internalize and practice these values (Sahin, 2019).

To foster unity and cohesiveness among Malaysians, the Malaysian Ministry of Education (MOE) outlined strategies in the Malaysian Education Blueprint (2013-2025) to prioritize the role of families. The primary objective is to offer family-life education programs to empower families and society to fulfill their roles effectively. This initiative aligns with the National Education Philosophy, which emphasizes holistic student development of intellectually, emotionally, spiritually, and personally (Ministry of Education, 2013). Instilling an early understanding of harmonious family values in the younger generation is crucial, as they will become the future parents shaping the next generation.

Family values play a critical role in shaping individual character and societal harmony, yet teaching these values in schools remains a challenge due to their subjective and multifaceted

nature. In Malaysia, family values are taught using a cross-curricular approach across five subjects, aiming to provide students with comprehensive exposure. However, many educators teaching these subjects lack specialized training, raising concerns about the consistency and depth of values education in classrooms. According to Rahimah et al. (2016), 46.3% of teachers assigned to these subjects lack relevant training, with the majority being trained in multiple disciplines rather than family education specifically. Consequently, non-specialist teachers often struggle to align their classroom practices with theoretical frameworks, leading to moderate levels of value internalization among students (Othman et al., 2016).

This scenario underscores the need for innovative approaches to values education. Pre-service teachers, equipped with contemporary pedagogical training, are uniquely positioned to address these gaps. Their practicum experiences provide valuable insights into strategies that bridge theoretical knowledge with classroom application. Exploring the teaching strategies employed by pre-service teachers offers an opportunity to enhance the effectiveness of values education in Malaysia.

Pre-service teachers, particularly those in their final year of training, hold a unique position in shaping the next generation. Equipped with contemporary pedagogical training, they are well-suited to address gaps in values education. During their practicum, pre-service teachers bridge theoretical knowledge with classroom application, developing essential skills such as classroom management, lesson delivery, and student engagement (Mkhasibe et al., 2021; Rif'atullah & Ciptaningrum, 2024). They also experiment with various teaching methods, adapt to classroom dynamics, and evaluate their effectiveness (Freeman, 2002; Partiwi, 2020). By exploring the teaching strategies employed by pre-service teachers, this study provides invaluable insights into effectively integrating family values into education.

Teaching family values requires more than a superficial mention in textbooks or lesson plans, it requires more skill and patience. There are many ways to teach values in the classroom, including both formal and informal approaches (Mugambi, 2022; Ibrahim et al., 2022). Particularly among teachers, it is essential for them to be well-versed and proficient in contemporary 21st century teaching and learning methods. Student-centered learning (SCL) is believed to be particularly effective in developing students' acquisition of 21st century skills (Zohrabi et al., 2012). Because educators consider students' needs both individually and collectively, they motivate them to participate in the learning process and allow them the flexibility to learn how to participate in a range of activities (Zohrabi et al., 2012). Methods such as storytelling, role-playing, collaborative activities, and project-based learning are particularly effective in instilling these values (Yusof et al., 2018; Sahin, 2019; Rahiem et al., 2020; Akhtar & Saeed, 2021). While teacher-centered learning is efficient for transmitting large amounts of information covering functional concepts and facts. This allows students to gain valuable knowledge in their subject matter (Yusof et al., 2018).

Despite the Malaysian Ministry of Education's emphasis on holistic education, gaps remain in understanding how to teach family values in diverse classroom settings effectively. While previous studies have focused on in-service teachers, the strategies employed by pre-service teachers during their practicums remain underexplored. Pre-service teachers offer a unique perspective, integrating contemporary pedagogical training with real-world classroom experience. This study addresses these gaps by exploring the teaching strategies used by final-year pre-service teachers to inculcate family values. By examining their approaches, this research aims to provide insights into innovative and effective methods for values education, contributing to the broader discourse on preparing future educators for this critical task.

## 2. Literature Review

### 2.1. Importance of Family Values in Education

Family values represent a system, attitudes, and beliefs that are fundamental to uniting family members across diverse cultural backgrounds (Mahmoudi, 2012). These values serve as a framework for establishing behavioral norms and rules within the family unit (Ghani et al., 2014). In the context of Western cultural perspectives, Bandura's Social Learning Theory highlights those human actions are shaped by the interplay of personal, environmental, and biological factors (Bandura, 1977). This theory underscores how these elements influence individual behaviors and value systems, making it pertinent to understanding the transmission and reinforcement of family values.

Family-life education offers direct exposure to the family system and is essential for equipping students with the knowledge and skills required to adapt to the socio-technological challenges of the Fourth Industrial Revolution. Its purpose within the school system is to nurture a strong sense of identity among the younger generation, thereby reducing the risk of involvement in immoral or socially detrimental activities.

The development of moral values is increasingly significant to prepare students for building strong, harmonious family institutions in the future. According to Ghani et al. (2014), adolescents who possess robust moral values are more likely to adopt adaptive strategies when coping with stressors, promoting positive outcomes. In contrast, those lacking these values may resort to passive or negative coping mechanisms, leaving them vulnerable to issues such as depression, low self-esteem, and self-blame. Psycho-spiritual capabilities also play a critical role in influencing adolescents' responses to stress.

Embedding the understanding of family values in education from an early age is crucial. Rahimah and Roslan (2009) revealed that many young individuals struggle to articulate their roles within their families, reflecting a gap in their foundational understanding of family values. This finding emphasizes the necessity of inculcating knowledge and values in children as early as seven years old (Veugelers, 2000; Rahimah & Roslan, 2009).

The absence of strong family values can lead to societal issues, including diminished respect for parental obligations, contributing to moral decay. Adolescents are particularly susceptible, as evidenced by rising incidents of crimes, violence, early marriages, bullying, gang activity, drug use, and other harmful behaviors (Sari, 2013; Ghani et al., 2014). Teaching family values is essential, as these serve as the cornerstone for building cohesive and sustainable communities and nations (Ghani et al., 2014; Shrivastava, 2017).

### 2.2. Child Development and Social Learning Theory

This study, which is grounded in social learning theory by Bandura's (1977), examines how human nature, the environment, and social factors interact to influence an individual's behavior. This theory highlights how important environmental factors are in forming people's personalities, especially those of parents, teachers, and peers. Bandura highlights that observation, imitation, and modeling are central components of the learning process, asserting that behaviorism alone cannot fully explain all types of learning.

Parents are regarded as the primary role models for children. Childhood experiences, as Bandura notes, have a lasting impact on adolescent behavior. Children often reflect their

families, mirroring the actions they observe rather than adhering strictly to verbal instructions (Kumari, 2017; Yusof et al., 2018; Mugambi, 2022; Ibrahim et al., 2022). Consequently, the initial and most critical step in inculcating values in children is for caregivers to exemplify the values they wish to impart (Rahiem et al., 2023). Within Islamic practices, the father or husband is designated as the household's highest authority, tasked with its administration (Mohd Hasrul & Mohd Fauzi, 2015). Similarly, the mother or wife plays a crucial role as both a support system for the husband and a primary educator of the child (Weber, 2011). Collectively, parents and caregivers serve as key role models for children and youth.
However, in today's context, not all parents have the opportunity to spend consistent time with their children. While families are ultimately responsible for instilling a strong sense of values, teachers also play a significant role, given the substantial time students spend in school (Bowers & Flinders, 1990; Roux & Dasoo, 2020; Khan et al., 2023). Educators are now entrusted with the critical responsibility of reinforcing values in students. Ideally, foundational values are established in early childhood through the combined influences of family, friends, and educators. During adolescence, children are challenged to apply these values in real-life scenarios, which often test their morals and beliefs. Teenagers can develop their own value systems during this time, which are shaped by their ethnic backgrounds, family structures, religious convictions, and cultural customs (Ghani et al., 2014).

This viewpoint is enhanced by Bronfenbrenner's (1994) ecological systems theory, which emphasizes the interaction between people and their surroundings. He identified four nested ecological systems, ranging from the closest (microsystem) to the most distant (macrosystem), which collectively influence a child's development. Later, Bronfenbrenner and Ceci (2006) expanded this framework by introducing the chronosystem, which accounts for the impact of time on these interactions. Their Process-Person-Context-Time (PPCT) model provides a comprehensive lens for measuring an individual's development over time. Bronfenbrenner emphasizes that systemic interactions across an individual's lifespan and generations profoundly shape values, such as family morals and beliefs, which are passed down and continuously evolve.

### 2.3. Teaching Approaches for Values-Based Education

Numerous approaches and strategies can be utilized in pedagogy, depending on the selected values, sources of development, and other limiting factors (Sari, 2013; Yusof et al., 2018; Vidhya, 2021; Ibrahim et al., 2022). However, there is no ideal or universally perfect approach to teaching values, particularly family values, as nurturing values remains a complex and nuanced task for educators (Rahimah & Roslan, 2009). Measuring the effectiveness of value education is inherently challenging, yet its impact on students' behavior and lives is significant (Vidhya, 2021; Mugambi, 2022).

Evocation, inculcation, awareness, moral reasoning, analysis, value clarification, commitment, and union approaches are some of the pedagogical strategies for value education that scholars have described. (Thakar, 2020; Nurhayati, 2022). Based on constructivist and democratic ideals, student-centered pedagogy encourages students to make sense of their experiences in a setting that develops critical and reflective thinking skills as well as a sense of accountability.

On the other hand, behaviorist theory, which sees behavior changes as the consequence of outside stimuli, is a major component of teacher-centered instruction. (Thakar, 2020; Nurhayati, 2022). Students are typically passive and react to outside cues in teacher-centered classrooms, with little opportunity for critical thinking or problem-solving exercises. (Bowers

& Flinders, 1990). As the teacher retains control over instruction and decision-making, this approach may restrict students' ability to practice independent thought.

Several strategies can be employed to teach values effectively. For instance, fostering two-way communication and building strong teacher-student relationships are critical for instilling values (Nurhayati, 2022; Mugambi, 2022). Storytelling is another powerful educational tool that helps students internalize moral and ethical values naturally. Immersed in stories, students often relate them to real-life experiences, reinforcing the lessons learned (Balakrishnan & Thambu, 2017; Mondal, 2017; Rahiem et al., 2020). This method enables students to grasp the essence of values through narrative contexts, making the learning process relatable and impactful (Suzanne, 2015; Balakrishnan & Thambu, 2017; Sahin, 2019; Rahiem et al., 2020).

Research also highlights the frequent use of student-centered methods, such as classroom acting, simulations, and group activities, in teaching values (Tasdemir et al., 2012; Sari, 2013; Schuitema et al., 2018; Thakar, 2020; Nurhayati, 2022). Activity-based learning, where students actively participate, enhances their engagement and effectiveness in internalizing values (Vidhya, 2021). Teachers can integrate these methods to encourage character development and promote the adoption of positive behaviors (Jannah et al., 2018; Nurhayati, 2022).

Another widely used strategy is direct explanation by teachers, often combined with modeling and providing examples to reinforce values (Kumari, 2017; Yusof et al., 2018; Mugambi, 2022; Ibrahim et al., 2022). Lecture-based instruction incorporating religious teachings or literary examples can further support value inculcation (Ibrahim et al., 2022; Akhtar & Saeed, 2021). These approaches ensure that students have a clear understanding of the values being taught.

### 2.4. Challenges Faces of Pre-Service Teachers in Values Education

The purpose of the suggested research framework is to investigate how pre-service teachers instill family values and how these efforts influence student engagement and academic outcomes. Grounded in Bandura's Social Learning Theory, which emphasizes observational learning through modelling and imitation, and Bronfenbrenner’s Ecological Systems Theory, which highlights the role of interactions within and across educational systems, the framework examines how pre-service teachers’ strategies shape learning experiences in diverse classroom contexts.

The framework identifies three primary constructs: Teaching Methods, Student Engagement, and Learning Outcomes. "Teaching Methods" encompass strategies consistent with behaviourist and constructivist learning theories, such as storytelling, role-playing, and collaborative projects. These methods are analysed to determine how they promote active learning and foster value internalization. "Student Engagement" refers to the extent of active participation and interest displayed by students during lessons, which is assessed through observations of interactive discussions and activity-based learning sessions. Finally, "Learning Outcomes" focus on the students’ ability to understand, internalize, and apply family values, evaluated through qualitative analysis of their behaviours and verbal responses.

By linking these constructs to the data collection and analysis process, the framework provides a systematic approach to understanding how pre-service teachers’ strategies influence both immediate classroom engagement and longer-term value adoption. This structured lens allows

the study to explore the effectiveness of specific teaching practices within the broader educational ecosystem.

### 2.5. Propose Research Framework

The purpose of the suggested research framework is to investigate how pre-service teachers instill family values and how this affects student engagement and academic results. Grounded in Bandura's Social Learning Theory, which emphasizes observational learning, and Bronfenbrenner's Ecological Systems Theory, which highlights systemic interactions, this study examines how pre-service teachers model and teach family values within complex educational ecosystems.

The framework includes three primary constructs: Teaching Methods, Student Engagement, and Learning Outcomes. "Teaching Methods" refer to the specific techniques and strategies pre-service teachers use, such as role-playing, storytelling, and group projects, which are consistent with behaviourist and constructivist theories of learning. "Student Engagement" is defined as the degree of active participation and interest demonstrated by students during lessons, fostered through interactive discussions and activity-based learning. "Learning Outcomes" describe students' ability to understand, internalize, and apply family values, assessed qualitatively through their responses and behaviors.

The findings reveal that key strategies employed by pre-service teachers align with these constructs, illustrating a clear connection between the framework and the thematic analysis. For example, storytelling (a teaching method) fosters emotional engagement and observational learning (student engagement), as described by Bandura's Social Learning Theory, and contributes to students' understanding and retention of family values (learning outcomes). Similarly, role-playing and group projects actively involve students in applying family values in simulated contexts, promoting critical thinking and problem-solving skills that enhance both engagement and outcomes.

This framework highlights how teaching methods directly influence student engagement, which in turn impacts learning outcomes. By operationalizing these constructs and linking them to specific strategies, the study provides a systematic and evidence-based approach to understanding the effectiveness of value-based education strategies. The inclusion of detailed measures, as outlined in Table 1, ensures clarity and replicability, contributing to a comprehensive understanding of how family values can be effectively taught in educational settings.

**Table 1: Construct and operational definition for propose research framework**

| Construct | Operational Definition | Example Measures |
|---|---|---|
| Teaching Methods | Strategies employed by pre-service teachers | Storytelling, role-play, group discussions |
| Student Engagement | Students' active participation in lessons | Activity-based learning, collaborative projects |
| Learning Outcomes | Understanding and application of family values | Insights from thematic analysis of responses |

## 3. Methodology

A qualitative method was used to explore the teaching methods employed by final-year pre-service teachers to inculcate family values. To achieve the research goal, semi-structured interviews were conducted to gain a more detailed insight. This study employs an exploratory methodology to enable a greater understanding of family values teaching approaches. As a result, the goal of this study was to understand better present practices rather than to verify

any particular hypothesis.

### 3.1. Sampling Method

A purposive sampling technique was employed to select respondents who could provide in-depth information relevant to the research objectives. This approach was chosen to ensure the accuracy and efficiency of data collection by focusing on participants with specific experiences and expertise. The sample comprised five pre-service teachers pursuing a Bachelor's degree in Home Science Education during the first semester of the 2023/2024 academic year. To ensure the sample was representative of diverse teaching contexts, participants were selected based on several criteria: active engagement in teaching family values during their practicum, use of varied teaching methods (e.g., storytelling, role-playing), and placement in different school environments, including both urban and rural settings. These criteria helped capture a range of perspectives and practices, reflecting the diversity of real-world teaching scenarios.

While purposive sampling does not aim for statistical generalizability, it is widely used in qualitative research to provide rich, detailed insights into specific phenomena (Tuckett, 2004). The focus on quality and depth of information rather than sample size aligns with the study's goal of exploring effective strategies for teaching family values. This approach allows the findings to offer transferable insights that can inform broader educational practices, despite the acknowledged limitation of limited participant numbers.

### 3.2. Research Instrument

In this study, a semi-structured interview protocol served as the primary data collection instrument. The protocol was designed based on insights from a comprehensive literature review and grounded in Bandura’s Social Learning Theory, which emphasizes the role of modeling and observational learning in education. To ensure its content validity, the protocol was reviewed and refined by experts specializing in Home Science Education. The interview questions were carefully crafted to elicit in-depth responses aligned with the research objectives. For instance, questions such as “What strategies do you use to teach family values?” and “How do you assess the effectiveness of these strategies?” were included to explore the teaching methods employed by pre-service teachers and their perceived impact on student engagement and learning outcomes.Data Collection

The data collection process encountered some constraints, primarily due to the limited availability of student teachers teaching family-related topics during their practicum. Consequently, the selection of respondents required meticulous planning. The researcher, in their capacity as a practicum supervisor, identified students scheduled to teach family-related topics and reached out to them individually to obtain consent for participation. Despite the small sample size, this approach ensured the inclusion of respondents directly aligned with the study’s objectives.

The study was conducted during the pre-service teachers’ 14-week teaching practicum in schools. During this period, two interview sessions were scheduled with each participant, each lasting between 30 minutes and 1 hour. The interviews were conducted face-to-face in an informal and comfortable setting at the school to encourage open and candid responses. To capture the discussions accurately, a digital audio recorder was used. The interviews were conducted in Malay, and the data were transcribed and analysed using ATLAS.ti software.

The coding process from the transcripts resulted in the identification of several significant themes.

### 3.3. Thematic Analysis Procedures

All interviews conducted during the study were audio-recorded and transcribed verbatim to ensure accuracy and comprehensiveness. The transcripts were reviewed multiple times to familiarize the researcher with the data and to capture non-verbal cues where relevant (Merriam & Tisdell, 2015). The transcripts were imported into ATLAS.ti software for analysis. Open coding was employed as the first step, wherein key phrases, sentences, and paragraphs were systematically examined and assigned descriptive labels (codes) that captured their essence. Codes were initially broad to allow for the capture of diverse ideas, such as "teacher-centered strategies," "student engagement," or "challenges in teaching family values." After the initial coding, overlapping or redundant codes were merged, and ambiguous codes were clarified.

Codes were grouped into categories based on conceptual similarities and recurring patterns. For instance, codes related to storytelling, explanation, and brainstorming were organized under a broader theme like "Teacher-Centered Methods." To ensure the validity of the themes, the coded data and developed themes were cross-checked by another researcher familiar with the subject matter. Discrepancies were discussed and resolved to achieve consensus, ensuring intercoder reliability. Data from interviews were triangulated with participant feedback to verify findings and enhance credibility.

This multi-source approach helped confirm that the themes were reflective of the participants' experiences. Measures to ensure rigor included keeping a detailed audit trail of coding decisions and maintaining reflexivity by documenting the researcher's reflections throughout the analysis process. This helped mitigate personal biases. A pilot coding exercise was conducted with a small subset of data to refine the coding framework before applying it to the full dataset. Themes were refined iteratively through constant comparison to ensure they accurately represented the data.

## 4. Findings

The findings of the study are based on the questions: what types of teaching approaches are used by pre-service teachers to inculcate family values to their students? This study has identified two main themes relevant to teaching approaches in family values. Namely teacher-centerd learning and student-centered learning.

### 4.1 Theme 1: Teacher-Centered Methods

The findings indicate that teacher-centered approaches play a significant role in teaching family values, particularly at the beginning of lessons. All five respondents reported using teacher-centered methods, such as providing explanations and storytelling, as foundational techniques to establish clarity and engage students. While teacher-centered methods, such as storytelling and direct instruction, provide foundational knowledge, student-centered strategies like role-playing and collaborative activities engage students in applying these values practically, fostering deeper understanding and retention.

***Explanations and Conceptual Clarity***

Respondents highlighted the importance of providing explanations to introduce key concepts and terms. This approach ensures that students have a clear understanding of the foundational content before engaging in further exploration:

"At the beginning of the class, I used teacher-centered..." (A03).
"In the topic family cycle... there are three levels. So explanation should be given first... make them clear." (A02).
"When it comes to values, I often start with explanations about the terms... for example, the meaning of responsibility. Then I relate it to the contents, the facts." (A01).

These responses illustrate how explanations serve as a critical starting point, providing students with the necessary context to grasp the lesson objectives effectively.

***Stimulating Curiosity and Engagement***

In addition to explanations, teacher-centered methods such as brainstorming and questioning were used to spark students' curiosity and prepare them for deeper engagement with the material:

"I created a slide show… to attract their attention." (A04).
"In teaching value, usually I'll do brainstorming to get their attention." (A02).
"Of course, I used a lot of questioning techniques… to start learning… to get some ideas from them." (A05).

These techniques are designed to bridge the gap between students' existing knowledge and the new content, fostering an environment where students are motivated to explore further.

***Storytelling as a Key Technique***

Respondents consistently emphasized the effectiveness of storytelling as a method for teaching family values. Storytelling was seen as more impactful than traditional lecturing, as it allows teachers to illustrate concepts through relatable examples and narratives. This method was particularly effective in fostering emotional connections and making abstract values tangible:

"I'll tell them about the background of their classmates... Then, relate it with the role of each family member." (A01).
"Usually, I tell them the stories of Prophet Muhammad... then relate it with our current life, the value behind it." (A03).

Teachers also noted that storytelling helps connect the content to real-life issues, enabling students to understand the relevance of values in their own lives:

"I like to tell students about social problems among teenagers, so that they can see exactly where their values are... and sometimes I share with them my own experiences." (A05).
"As teenagers grow up, they need someone to listen to them. So having storytelling... they feel close, and it's easier to inculcate them with good values." (A04).

***Integration of Teacher-Centered Approaches***

An analysis of lesson plans revealed that teacher-centered methods are consistently used to

deliver content effectively. These methods typically begin with explanations to define key concepts and are followed by storytelling to maintain students' interest and ensure understanding. Storytelling, in particular, is valued for its ability to simplify complex ideas and connect emotionally with students.

The findings underscore the importance of teacher-centered approaches in teaching family values. These methods provide structure and clarity, making them particularly effective at the start of lessons. Storytelling, as a core technique, not only enhances comprehension but also fosters emotional engagement, making it easier for students to internalize values. This combination of techniques demonstrates the strategic role of teacher-centered methods in laying a solid foundation for subsequent learning activities.

### 4.2. Theme 2: Student-Centered Strategies

The findings indicate that a student-centered approach is essential for fostering a deeper understanding of family values. Respondents unanimously agreed that student-centered learning (SCL) should follow the initial teacher-centered explanation of concepts. This structured sequence ensures that learning objectives are met effectively and that students engage actively with the material.

#### *Activities Used in Student-Centered Learning*

Respondents pointed out a range of practices used to facilitate student-centered learning, including brainstorming sessions, role-playing, group discussions, and critical thinking exercises. These activities provide students with opportunities to explore concepts collaboratively, express their ideas, and develop critical soft skills. For instance, one teacher stated:

"I use student-centered approach… in group activities." (A03)
Group activities, such as discussions and presentations, encourage students to share their perspectives and evaluate different viewpoints. As one respondent explained:
"Examples in learning budgeting. Need calculations, I give them an example of a family... parents with schoolchildren, then give an amount of their income. Discussion is important because students need to consider needs and wants... be wise in their spending." (A03)

These collaborative exercises enable students to internalize values by applying them in real-world scenarios, such as budgeting and family decision-making.

#### *Open-Ended Questions and Critical Thinking*

Open-ended questions are another strategy highlighted by respondents to stimulate critical thinking and problem-solving skills. These questions help students explore cause-and-effect relationships and apply values to practical situations. Examples shared by teachers include:

"In teaching the value of responsibility, I ask, 'As a husband, what would you do if your wife didn't obey you?' Students can come up with many answers, and their responses reflect their understanding." (A03)
"Consumerism, for example. If someone buys cosmetics and faces an issue with their skin, I ask, 'What do you think you need to do? What action is necessary to avoid harm?'" (A01)

Such questioning techniques guide students to critically evaluate their actions and decisions,

linking family values to real-world contexts.

***Role-Playing for Experiential Learning***

Role-playing emerged as a frequently used technique for teaching family topics. It provides students with an experiential learning opportunity where they can simulate real-life situations and practice applying values. Teachers reported that role-playing is particularly engaging and helps retain students' attention:

"As an example, role play on social issues... such as a child trapped in drug addiction. How can the family help? This acting can inculcate family values indirectly." (A04)

This method not only makes learning enjoyable but also enhances students' empathy and understanding of family dynamics.

***Development of Soft Skills***

Beyond fostering an understanding of family values, student-centered strategies contribute significantly to the development of essential soft skills such as teamwork, communication, and tolerance. Teachers noted that these activities helped students overcome shyness and encouraged active participation:

"Of course, they will have a discussion and other activities… this is how I embed values in my teaching." (A05)

By engaging in diverse and interactive activities, students were able to practice and internalize family values while simultaneously building their interpersonal skills.

The results show that when it comes to teaching family values, student-centered learning is an essential supplement to teacher-centered methods. Activities such as group discussions, open-ended questioning, and role-playing help create an interactive and supportive learning environment. These methods improve students' critical thinking, communication, and teamwork abilities in addition to fostering an awareness of and instillation of family values. By tailoring teaching approaches to the topic and the students' needs, pre-service teachers are able to foster both intellectual and emotional engagement, increasing the likelihood of successful value inculcation.

## 5. Discussion

The findings reveal that pre-service teachers use a combination of teacher-centered and student-centered approaches to inculcate family values in their students. This dual approach aligns with previous research, which emphasizes that neither strategy alone is sufficient to achieve effective teaching and learning outcomes (Emaliana, 2017; Bhutani et al., 2022; Osias et al., 2023). Instead, employing diverse methods helps address the abstract and subjective nature of family values, catering to students' varied needs and learning preferences (Mondal, 2017; Yusof et al., 2018)

Teacher-centered strategies, particularly explanations and storytelling, play a foundational role in teaching family values. Teachers use explanations to introduce and clarify key concepts, ensuring students have a clear understanding of foundational knowledge. For instance, participants highlighted that when teaching abstract concepts like responsibility, they

began with detailed explanations to establish a framework for further exploration. This practice aligns with the principles of Bronfenbrenner's ecological systems theory, as explanations provide students with a structured microsystem that fosters understanding and sets the stage for engagement (Othman, 2016; Vidhya, 2021).

Storytelling emerged as a key strategy for teaching family values, as participants frequently used narratives to illustrate complex concepts like responsibility. For example, one participant described using stories about family conflicts to help students understand the consequences of different behaviors and the importance of resolving issues responsibly. This approach aligns with Bandura's Social Learning Theory, where observational learning occurs as students internalize values modeled through the narrative. Research by Rahiem (2020) and Khan (2021) supports this, highlighting that storytelling enhances emotional engagement and aids in the retention of values. Moreover, storytelling creates a rich microsystem of emotional engagement, allowing students to empathize with characters and connect lessons to their own lives. Research by Suzanne (2015), Rahiem (2020), and Nurhayati (2022) corroborates these findings, demonstrating that storytelling enhances emotional understanding and retention in values education.

Student-centered strategies, including discussions, role-playing, and question-and-answer sessions, complement teacher-centered methods by actively involving students in the learning process. These approaches align with Bronfenbrenner's meso- and exo-systems, which emphasize the interplay of multiple influences on student learning, such as peer interactions and classroom environments. Role-playing, for example, provides experiential learning opportunities where students simulate real-life family scenarios, enabling them to practice problem-solving and decision-making skills. Participants noted that these activities foster empathy and help students internalize values, as supported by studies by Balakrishnan and Thambu (2017) and Mugambi (2022).

Open-ended questioning further encourages critical thinking by prompting students to explore cause-and-effect relationships and apply values to practical situations. For instance, one participant asked students to consider the responsibilities of a family member in a hypothetical conflict, stimulating thoughtful discussion and application of learned values. This aligns with constructivist principles, which emphasize active participation and reflective learning, as well as Bronfenbrenner's ecological focus on interactive learning environments (Veugelers, 2000; Nurhayati, 2022).

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By combining teacher-centered and student-centered approaches, pre-service teachers create a holistic learning environment that fosters meaningful understanding of family values. These strategies reflect the theoretical constructs of Bandura's Social Learning Theory and Bronfenbrenner's Ecological Systems Theory. Bandura's emphasis on observation, imitation, and modeling is evident in teacher-centered methods like storytelling, where students learn by observing modeled behaviors. Similarly, Bronfenbrenner's ecological systems theory highlights how structured and interactive learning environments contribute to cognitive and

emotional engagement at multiple systemic levels.

For example, teacher-centered approaches provide a stable microsystem of instruction, laying the foundation for understanding key concepts. Student-centered strategies then expand this foundation by engaging students in meso-level interactions, such as group discussions and collaborative activities, which reinforce value internalization and practical application. This layered approach ensures that teaching methods address both the cognitive and emotional dimensions of learning (Pandey, 2016; Sahin, 2019)

The findings also underscore the importance of collaboration between teachers, parents, and students to reinforce values education in both school and home environments. Teachers' ability to blend formal and informal teaching methods strengthens the learning process, fostering a supportive relationship that facilitates moral development. For instance, participants emphasized the role of informal storytelling and discussions in bridging classroom learning with real-life applications, echoing research by Sari (2013) and Faraq Elhoshi et al. (2017). This collaborative approach aligns with Bronfenbrenner's ecological focus on the interconnectedness of systems and Bandura's emphasis on the social contexts of learning.

## 6. Conclusion

This study highlights the importance of combining teacher-centered and student-centered approaches to teach family values in educational settings effectively. The findings reveal that pre-service teachers often rely on teacher-centered methods, such as storytelling and explanations, to introduce and clarify key concepts. These foundational strategies are enhanced by student-centered approaches, including role-playing, open-ended questioning, and discussions, which foster critical thinking, active participation, and teamwork.

The study aligns with the objectives of the Malaysian Education Blueprint (2013–2025), which emphasizes innovative and engaging teaching strategies to equip students with 21st-century skills. To enhance the effectiveness of values education, teacher training programs should integrate family values into their curriculum by providing workshops, seminars, and practical opportunities for pre-service teachers to implement student-centered methods during their teaching practicums (Pratiwi, 2020; Rif'atullah & Ciptaningrum, 2024). Embedding these strategies in coursework will ensure pre-service teachers are prepared to address the diverse and evolving needs of students in modern classrooms.

Additionally, the curriculum should focus on bridging theoretical knowledge with real-world applications, equipping teachers to navigate the complexities of values education. By adapting teaching methods to ensure students not only understand the significance of family values but also internalize and apply them in daily life, educators can cultivate responsible, empathetic individuals who contribute positively to their families, communities, and society.

Finally, the continuous development of teaching practices, particularly through the integration of technology, can further enhance educators' ability to deliver meaningful and engaging values education. By prioritizing such innovations in teacher training programs, educational institutions can prepare future educators to create impactful and transformative learning experiences in values education.

## 7. Limitations of the Study and Recommendations

This study has several limitations that should be acknowledged. First, the pre-service teachers had only completed one course on teaching family management during their first semester. In contrast, their teaching practicum occurred during the final semester of their fourth year. Since the concepts and knowledge acquired earlier so they were no longer fresh in their minds, this time difference probably contributed to their inability to retain it. Additionally, since they lacked practical teaching experience at that time, whatever was taught in the first semester might have been confusing or difficult for them to understand fully.

The second restriction relates to the teaching practicum itself. Pre-service teachers are required to follow the topics outlined in the designated textbooks throughout their probationary period. As their practicum generally takes place between March to July, students often engage in discussions on topics clothing and food management during this period. As a result, the pre-service teachers only had the opportunity to teach one or two topics related to family values. Consequently, interviews for this study were restricted to the particular topics they taught during their practicum, which might have limited the breadth of insights that could be gained.

To overcome these limitations, it is suggested that the pre-service teacher curriculum be reviewed to ensure that family management topics are integrated more consistently throughout their training, providing opportunities for reinforcement nearer their practicum period. Additionally, educational institutions and teacher training programs should consider providing more diverse practicum teaching experiences, allowing pre-service teachers to engage with a broader range of family-oriented topics.

Finally, this study is limited to pre-service teachers from one university, which may affect the generalizability of its findings. Carrying out comparable studies with in-service or expert in Home Science teachers could provide more comprehensive insights and improve the relevance of the findings.

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# GAME PLAN FOR LIFE: CAREER PREPARATION STRATEGIES OF UNIVERSITY STUDENT ATHLETES

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## ABSTRACT

The issue of to what extent university student-athletes are prepared to enter the workforce upon graduation is an important concern in today's era. As career shifts follow the evolution of technology, the careers of student-athletes are also at stake. This case study investigates the career readiness of seven final-year student-athletes from Universiti Putra Malaysia (UPM), representing diverse sports disciplines and academic programs. It is guided by three research questions related to (1) career planning strategies, (2) the impact of dual academic-athletic demands, and (3) the role of support systems in shaping career preparation. Data were collected via semi-structured interviews and participants' observations. Using Interpretive Phenomenological Analysis (IPA), seven major themes and 21 categories were derived from the three main research questions associate with strategy, impact of dual demands, and role of social support in their career preparation. Findings suggest that student-athletes often lack structured career planning, experience role conflict, and rely heavily on informal networks for guidance. The study highlights the need for integrated support frameworks, including career counselling, flexible academic programming, and targeted interventions. A longitudinal research design is recommended further to explore the impact of career preparation strategies post-graduation.

**Keywords:** career preparation strategies, dual career, university student-athletes, tertiary education

## 1. Introduction

The career preparation and readiness of student-athletes is a multifaceted issue that encompasses various psychological, social, and institutional factors. Research indicates that student-athletes often experience lower levels of career maturity compared to their non-athlete peers, which can hinder their ability to make informed career decisions (Hong et al., 2022). For instance, Smith and Hardin (2019) found that early engagement with academic and career resources significantly aids student-athletes in developing coping mechanisms for their transitions. This proactive approach is vital, as many student-athletes report feeling unprepared for the workforce due to the intense focus on their sports commitments (Coffin et al., 2021). This is particularly crucial as many student-athletes face unique challenges, such as the pressure to select a degree path early due to eligibility requirements, which can truncate their career exploration process (Haslerig & Navarro, 2015). Many articles discussing career preparation among student-athletes were published some time ago, highlighting the need for more recent research on this important topic (Hong et al., 2022; Fernandez, 2022). Nevertheless, this issue has become increasingly critical with the rapid evolution of technology (Saarinen et al., 2022), exposure to mental health (Coffin et al., 2021), and the significant societal shifts due to COVID-19 that impact everyone, including student-athletes (Graupensperger et al., 2020).

Moreover, the transition from athletics to post-collegiate careers is often inadequately addressed, with many student-athletes receiving career management support only after their athletic careers have ended (Kim, 2014). This lack of proactive career development can lead to decreased confidence and a passive approach to career planning (Fernandez, 2022). Indirectly, this can negatively impact student-athletes by limiting their career options to the narrow scope of 'sports careers' or roles related to their athletic background. In the worst-case scenario, as highlighted by Quinaud et al. (2023), statistics reveal that many student-athletes end up unemployed or forced to accept jobs unrelated to their passion for sports. Study by Huang et al. (2016) highlight the importance of psycho-biosocial readiness for transitioning to post-sport careers, suggesting that student-athletes should actively engage in vocational development outside of their sport to facilitate a smoother transition.

Condello et al. (2019) emphasise the mentoring influence of coaches, which can significantly impact a student-athlete's dual career trajectory. Similarly, Hong et al. (2022) emphasised the role of support systems, including coaches and mentors, critical in shaping the career readiness of student-athletes. Furthermore, the development of career decision-making self-efficacy is essential, as parental support and coach influence have been shown to enhance athletes' confidence in navigating their career paths (Retnam et al., 2018). Career readiness encompasses a range of competencies, including the ability to visualise future career paths and actively pursue opportunities such as internships and networking (August, 2018). However, many student-athletes struggle with balancing their academic and athletic

commitments, which can detract from their career preparation efforts (Davis et al., 2022). The systems-theory framework of career development suggests that both internal and external factors significantly affect student-athletes' career trajectories, necessitating a comprehensive approach to career services that addresses these unique challenges (Davis et al., 2022).

Understanding the career preparation strategies will help the transition from university athletics to professional careers become more structured, with institutions implementing programs that prepare student-athletes for life after sports. It is found that early engagement with academic and career resources significantly aids student-athletes in developing coping mechanisms for their transitions (Smith & Hardin, 2019). This proactive approach is vital, as many student-athletes report feeling unprepared for the workforce due to the intense focus on their sports commitments (Coffin et al., 2021). Indirectly leading to increased stress and anxiety levels among this population (Graupensperger et al., 2020). This study aims to explore the career preparation strategies of student-athletes to support their transition after graduation. However, due to time constraints and approval concerns, the study was conducted within a single institution. Nevertheless, to ensure reliability and validity, specific criteria will guide participant selection, and data will be collected until saturation is achieved, as further explained in the methodology section. Accordingly, this study was designed to address the following three research questions:

- RQ1: What strategies do university student-athletes employ to navigate career planning as the transition from higher education and sport to the workforce?
- RQ2: How do the dual demands of academics and athletics impact the career preparation of student-athletes?
- RQ3: What role do support systems (e.g., counsellors, departments, coaches) play in the career preparation of student-athletes?

## 2. Literature Review

### 2.1. Dual Career Trend for Student-Athletes

University student-athletes often face unique challenges in preparing for careers beyond their athletic endeavors. Unlike typical university students, they must balance rigorous training schedules, frequent tournaments, and external expectations while maintaining strong academic performance. The demanding nature of managing both academics and athletics can limit their engagement in career development activities, leading to underdeveloped decision-making skills and delayed career planning compared to their non-athlete peers (Espina, 2020). This dual commitment may result in identity foreclosure, where individuals become overly identified with their athletic role, potentially hindering their exploration of alternative career paths (Espina, 2020). Consequently, many student-athletes struggle with the transition from sports to the professional workforce, experiencing anxiety and uncertainty about their future careers (Graupensperger et al., 2020).

To address these challenges, many student-athletes adopt a dual-career approach to cater dual demand, combining sport with education or work, which helps them balance their athletic and non-athletic commitments while preparing for life after sports (Hong et al., 2022). This dual-career trend has gained significant attention in recent years, as it allows athletes to continue their involvement in sports while pursuing academic and professional development (Cano et al., 2020; Izzicupo et al., 2021; Condello et al., 2019). For many who have grown up immersed

in sports, leaving the field entirely can be difficult, making dual careers a practical and increasingly popular option for ensuring a smoother transition into the workforce.

Student-athletes face the challenge of balancing their sporting commitments with their educational and career development goals (Cano et al., 2020; Cartigny et al., 2020). Research has shown that student-athletes who are able to successfully navigate the dual career path tend to exhibit higher levels of self-esteem and career adaptability (Nikander et al., 2021). However, the implementation of effective dual career support systems at the institutional level remains a challenge (Palumbo et al., 2021; Izzicupo et al., 2022). Barriers to successful dual career development include perceived lack of time, difficulty in balancing academic and athletic responsibilities, and limited access to relevant information and services (Vaquero-Cristóbal et al., 2023; Nikander et al., 2022). Addressing these barriers through targeted interventions and policy changes at the institutional and national levels is crucial for supporting student-athletes' career preparation (Onose et al., 2023; Puskás & Perényi, 2015). The dual career environment and organisational culture of the educational institution can also significantly impact student-athletes' ability to thrive in both the academic and athletic domains (Korhonen et al., 2020; Quinaud et al., 2023). Fostering a supportive and flexible environment that recognises the unique needs of student-athletes is essential for their holistic development (Quinaud et al., 2023). The study gathered the literature review that studied the dual career trend as a career preparation among student-athletes and can be summarised in Table 1.

**Table 1: Summary of Dual Career for Career Preparation**

| Factor | Explanation | Article(s) |
|---|---|---|
| Support system | - Parents, coaches, academic staff, and sport personnel in navigate the demands of their dual responsibilities<br>- Coherent coordination and integration between support providers enhance student-athletes' manage roles effectively | - Gjaka et al., (2024);<br>- Capranica et al., (2022);<br>- Izzicupo et al., (2022) |
| Flexible academic arrangements | - Adaptable curricula, academic tutoring, and sport monitoring services allow student-athletes to better balance their time and commitments | - Cano et al., (2020);<br>- Brustio et al., (2020);<br>- Gjaka et al., (2024) |
| Coping mechanism and life skills | - Skills (i.e., time management, goal setting, and decision-making) help student-athletes successfully handle the pressures of their dual responsibilities | - Izzicupo et al., (2021);<br>- Quinaud et al., (2022);<br>- Saarinen, (2024) |
| Motivation and identity | - Prioritize either sports or academics, depending on their personal goals and circumstances | - Lin et al., (2022);<br>- Cartigny et al., (2020) |
| Challenges and barriers | - Difficulty reconciling academic and athletic commitments as they approach the conclusion of their sports careers<br>- Burnout and negative career thoughts complicate dual career experiences | - Huang et al., (2016);<br>- Macia-Andreu, (2023);<br>- Kuettel et al., (2017) |
| Holistic approach | - Addressing the needs of the individual while considering the broader educational and athletic environments<br>- Effective strategies (i.e., comprehensive support systems, internships, mentorship programs, and policies) that integrate academic flexibility with skill-building opportunities | - Capranica et al., (2022);<br>- Stambulova et al., (2015);<br>- Gjaka et al., (2024);<br>- Mateo-Orcajada et al., (2022) |

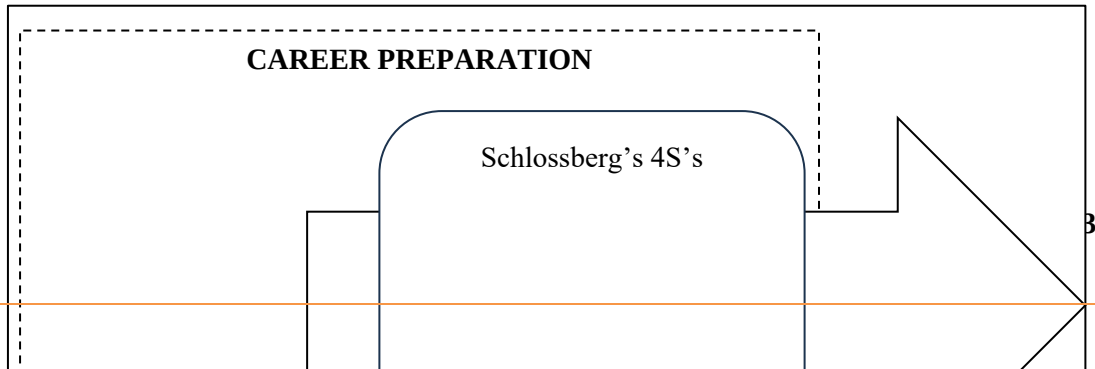
### 2.2. Schlossberg's Transition Theory in Career Preparation

Schlossberg's Transition Theory, developed by Nancy Schlossberg in the 1980s, has been employed to understand the complex phenomenon of how individuals experience and cope with change, particularly during transitions such as moving between occupations, shifting careers, or transitioning from student life to the workforce. The theory is widely used to explore how individuals adapt to various life transitions as a continuous, phased process of moving out of, moving through, and moving into new situations (Coston, 2023). It has been widely applied in various contexts, including student transitions (Coston, 2023; Gray et al., 2022), veteran transitions (Carpenter & Silberman, 2020), career transitions (Lavallee, 2006), and transitions in later life (Koltz & Koltz, 2019). When applied to career preparation, the theory provides a valuable framework for understanding how individuals prepare to enter the workforce. In this study's context, it explains how student-athlete get ready to transition into

post-collegiate careers. This suggests that they are at a critical career transition, characterised by the "moving out" and "moving through" phases, as they are still in their final year of study and sports while preparing for their exit from both and entry into professional life.

Schlossberg posits that an individual's ability to cope with a transition depends on the interaction of four key factors; internal and external factors often referred to as the "4 S's": situation, self, support, and strategies (Coston, 2023). These elements guide the exploration of how student-athletes prepare for their transition into the workforce by influencing their perception, decision and strategies. Figure 1 proposes a conceptual framework that contextualises the career preparation experiences of final-year university student-athlete. The framework links the 4 S's – to the three core research questions. The "situation" factor examines the characteristics of the transition, such as whether it is expected or unexpected, positive or negative, and the individual's perception of the change. In this framework, the "situation" reflects the "moving through" transitional phase from student-athlete to working professional. This includes the pressures of navigating and adjusting dual commitments including academic deadlines, sports commitments, and uncertainties about life. The "self" factor focuses on an individual's personal and demographic characteristics, including their psychological resources, resilience, and coping abilities, which influence how they navigate the transition. The "self" captures individual attributes such as athletic identity, resilience, self-efficacy, and their perceived control over their career outcomes. These internal characteristics determine how student-athletes perceive and respond to career-related challenges. The "support" factor emphasises the role of social support systems in helping an individual through the transition process. While in this framework, the "support" component involves external sources that contribute to career preparation—such as guidance from coaches, mentors, peers, academic advisors, and family members. Finally, "strategies" refer to the practical actions and coping mechanisms adopted by student-athletes, including participation in career workshops, networking, proactive job searching, and balancing sports training with career development activities.

The four factors can significantly shape how student-athletes or individuals in similar dual-career paths prepare for, and ultimately navigate, career changes and transitions. By emphasising the interplay of personal characteristics, support systems, and effective strategies, the theory highlights the multifaceted nature of career preparation, offering insights into how individuals can adapt and thrive as they shift from one phase of life to another (Coston, 2023). It also helps explains why some individuals are better prepared than others during transition process – based on their situation, self-perception, support systems, and strategies employed. In this study, the conceptual framework grounded in Schlossberg's theory informed the thematic structure of the data analysis, with findings categorised into three major themes—career planning strategies (RQ1), impact of dual demands (RQ2), and role of support systems (RQ3)—each corresponding with specific elements of the 4 S's. By aligning the lived experiences of student-athletes with this theoretical lens, the framework enables a nuanced understanding of the career readiness process and highlights where targeted institutional interventions could improve outcomes. It also supports recommendations for future longitudinal studies to examine how these transitions evolve over time, especially post-graduation (Lavallee, 2006; Koltz & Koltz, 2019).



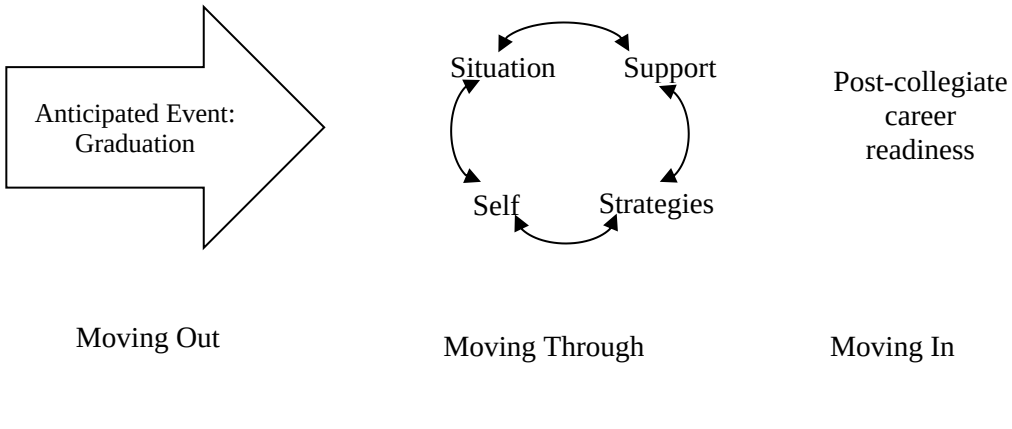



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**Figure 1: Research Framework**

## 3. Methodology

Based on the study's research questions, the researchers selected a single case study focusing on student-athletes from a single institution, UPM. A single case study does have its limitations—it may not be easily generalized to larger populations, has a smaller sample size, and could be influenced by bias, affecting objectivity. However, it also offers significant advantages. It allows for a deep, holistic understanding of the case and can uncover unique or unexpected insights that broader studies might overlook (Gustafsson, 2017). Since the goal of qualitative research is not necessarily to generalize findings, a single case study is a suitable approach for this study.

UPM was selected for several reasons. It is recognised as one of the institutions with the highest number of student-athletes under the Memorandum of Understanding (MoU) with the National Sports Council (MSN). UPM offers flexible academic provisions such as reduced credit enrolment per semester and remote access to lecture materials, particularly beneficial for overseas-based athletes (Zakaria, n.d.). Moreover, institutional access and approval to collect data from UPM student-athletes further justified its selection as the single-case focus.

To ensure trustworthiness and credibility, the study employed methodological triangulation, combining data from semi-structured in-depth interviews, non-verbal observations (i.e., intonations, body language, eye contacts during the interview and trainings sessions), and document analysis (i.e., performance reports, sport portfolios and newspaper articles). Each method contributed complementary perspectives, allowing for cross-validation of emerging themes. To ensure analytic transparency and reduce bias, the researchers employed reflexivity by maintaining field journals, reflective memos, and an audit trail documenting the entire data collection and interpretation process.

Data were collected using purposive and criterion sampling strategies. Participants were first selected based on characteristics that align with the study's objectives and research questions. Three inclusion criteria were applied:

(i) First, the study involved interviews with final-year university student-athletes from various courses or programs. The rationale was to gain detailed insights into their career preparation strategies as they approached graduation and entry into the workforce.

(ii) Second, participants were required to be actively involved in sports, representing various levels of achievement, such as national or international competitions.
(iii) Lastly, student-athletes were chosen from diverse cultural, socioeconomic, geographical, and sporting backgrounds to explore how these factors shaped their career strategies.

In total, seven participants were recruited. Each interview lasted between 45 to 60 minutes, was conducted face-to-face, digitally recorded with consent, and transcribed verbatim. Observational data were documented during interviews and training sessions, focusing on behaviour, tone, and interactional cues. Supplementary data included athletes' performance documents and publicly available profiles.

The analysis process followed the CoCaT framework (Codes, Categories, and Themes), supported by Atlas.ti qualitative analysis software. After transcription, data were imported into Atlas.ti and subjected to open coding, where initial codes were inductively derived from the participants' narratives. Codes were iteratively grouped into categories, which were then abstracted into broader themes. Thematic development was guided by IPA allowing for a detailed exploration of lived experiences and meaning-making processes. Data collection ceased when thematic saturation was reached, and no new themes or insights emerged after the seventh interview.

The final analysis revealed three major themes and nine subcategories, which were mapped onto the conceptual framework based on Schlossberg's Transition Theory. A comparative thematic analysis approach was used to identify similarities and variations across different participants, sports disciplines, and academic programs, thereby enhancing the depth and breadth of insights. Figure 2 illustrates the study's data collection and analytical process.

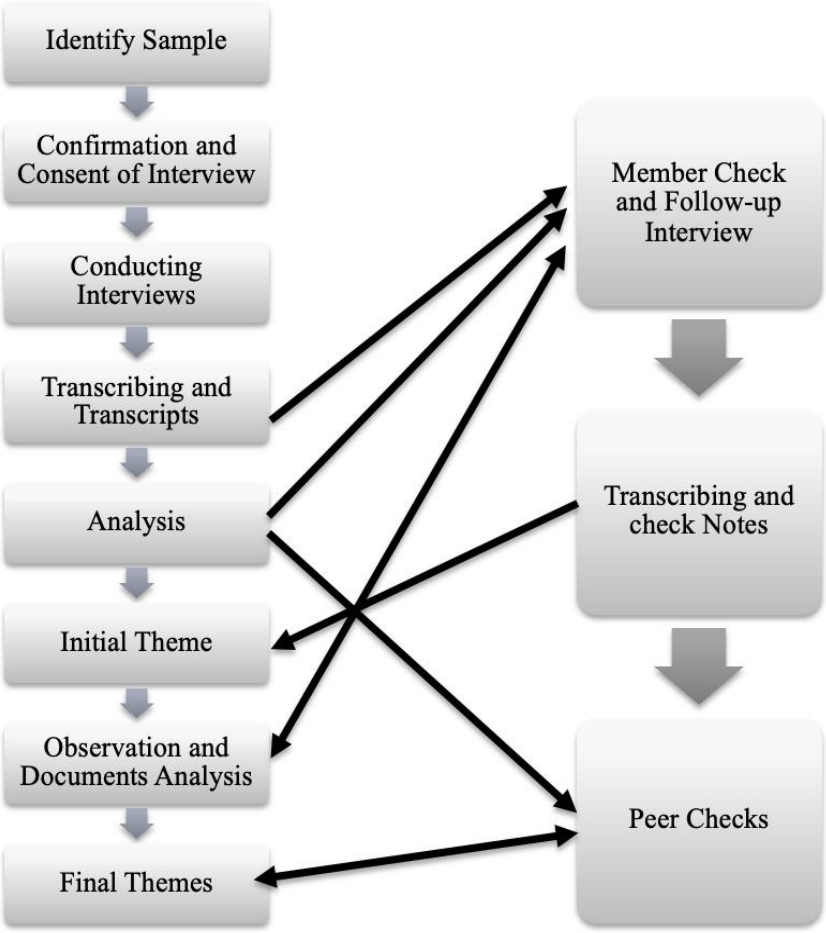


**Figure 2: Data collection and data analysis flow**

### 3.1. Participant Information

The profile of the seven participants reflects a diverse range of experiences in sports and years of involvement, as summarised in Table 2. To ensure confidentiality, pseudonyms have been used to replace participants' real names. The sample includes three males and four females, aged between 22 and 24 years, all of whom have extensive athletic backgrounds, with involvement in sports ranging from 8 to 18 years. They have competed at different levels, including both national and international tournaments, bringing a rich array of perspectives to the study.

Although previous studies such as Lupo et al. (2017) and Comeaux and Harrison (2011) reported gender-based differences in career planning among student-athletes, the findings of this study are more consistent with Ryan (2015) and Martens and Cox (2020), who found no significant differences based on gender or type of sport. In the present study, all participants reported receiving comparable support from both Universiti Putra Malaysia (UPM) and the Malaysian National Sports Council (MSN), including financial incentives, structured training, and access to career development programmes. Given the uniformity in institutional support and the similarity in participants' reflections across genders, the analysis did not separate findings based on gender, as it was not a distinguishing factor in their career preparation experiences.

**Table 2: Participant Information**

| | Gender | Age (years) | Sport | Years involve in sport | Level of highest tournament |
|---|---|---|---|---|---|
| P1 | Male | 24 | Tenpin Bowling | 18 | International |
| P2 | Male | 23 | Track & Field | 8 | International |
| P3 | Male | 24 | Softball | 13 | International |
| P4 | Female | 23 | Archery | 10 | International |
| P5 | Female | 24 | Archery | 8 | International |
| P6 | Female | 22 | Archery | 10 | International |
| P7 | Female | 22 | Badminton | 14 | National |

## 4. Findings and Discussion

The findings and discussions are summarised in Table 3. Seven overarching themes emerged from the research questions, encompassing a total of 21 categories identified through the interviews. Detailed explanations of these themes, categories and sample of excerpts or codebook are provided and will be discussed in the subsequent section.

**Table 3: Themes and Categories**

| Research question | Theme | Categories | Sample of Excerpts or Codebook |
|---|---|---|---|
| RQ1 | Dependence on sports as a career | Long-term athletic career goals<br>Interest in coaching/sports education<br>Dependence on sport for income/security<br>Institutional support shaping career decisions (e.g., MSN)<br>Identity strongly tied to sport | **P1:** "Yeah, we (refer to his friends as well) know it's risky and not very sustainable in the long run, especially here in Malaysia. But still, I really hope I can stay in the sports industry somehow. It's what I'm passionate about."<br>**P2:** "Most of my friends already set their minds on pursuing a sport-related career because our program is also related to sports."<br>**P3:** "If possible, I'd really like to stay in sports...it's what I've been doing for years and what I enjoy the most."<br>**P5:** "I'm still thinking of playing sports as my second career for my additional sources of income."<br>**P6**: "Still, many of my friends have chosen to settle into a career in sports—most of them have been receiving financial support from MSN for years, which makes them feel that this is the right path for us" |
| | Strategy to pursue non-sport-related careers | Focus on education as a career foundation<br>Career backup strategies<br>Awareness of instability in sport careers<br>Use of digital tools and networks (e.g., LinkedIn, JobStreet)<br>Self-initiated skill development | **P4**: "Besides training, I've been looking into professional courses and internships—something that can help me if I need to switch careers later on."<br>**P5:** "I focused more on education... I believed to succeed in a career transition, it's by further studies as a backup."<br>**P6:** "I'm trying to build a backup plan outside of sports, just in case things don't work out. That's why I'm focusing more on my studies now."<br>**P6:** "But at the same time, I know the sports industry isn't very stable, so I have to be careful and think about other options too."<br>**P7:** "I started exploring job platforms like LinkedIn... I equipped myself with technical and soft skills, computer skills, time management…" |
| | Time constraints and limited career | Balancing academic and athletic responsibilities<br>Prioritisation challenges | **P7:** "The third factor is time management—being disciplined with our time between sports and study... particularly for those of us in our third or final year of study." |

| | | | |
|---|---|---|---|
| | preparation opportunities | | **P5:** "Sometimes I feel like I'm just rushing through assignments after training. There's not enough time to really focus on studies or look into internships."<br>**P3:** "When tournaments get close, I just can't think about anything else—not even class or career stuff. It's hard to plan ahead when you're always focusing on the next game."<br>**P2:** "I wanted to join a campus career programme last semester, but training camps clashed with the dates. So I had to skip it." |
| RQ2 | Psychological and emotional impacts | Mental health and emotional strain<br>Resilience and coping mechanism | **P5:** "Emotional and mental strength play a significant role in making sure that both sports and careers stay on the right track, especially during big events or tournaments."<br>**P6:** "There are times I feel really overwhelmed. Like during the SEA Games, I had to skip some assignments and couldn't focus. It all builds up."<br>**P3:** "It's not easy, but I try to stay positive and break things into small goals, one thing at a time. That helps me manage the stress."<br>**P1: "**I once failed to compete in one of the world tournaments due to an injury and my slower recovery process caused by age. There was no mental support, and I was left behind. It made me realise that once you are unwell in the sports world, you are no longer considered relevant." |
| RQ3 | Perceived quality and accessibility of institutional support | Career centre accessibility<br>Administrative rigidity | **P4:** "Lecturers and coaches are helpful in guiding us to shape our careers because they are experts who understand which career paths suit us best. Their knowledge, expertise, and experience play a crucial role in helping us decide what is best for our future."<br>**P7:** "They held career workshops, but most of the sessions were during training hours. It's hard to attend unless you skip practice, and that's not really an option for us."<br>**P3:** "I tried to explain to the department that I was away for an international game, but they still penalised me for missing the assignment. There's no special arrangement for athletes sometimes—it's frustrating."<br>**P5:** "I requested to delay my internship because of a training camp, but they said it had to be done according to the academic calendar. No exceptions." |
| | Role of coaches and sport administrators in career guide | Negative and positive coach influence<br>Lack of personalised career support | **P4:** "My coach always reminds us that sport won't last forever. He encourages us to think about what we're good at outside of training. He even shared a contact from the sports science field for me to talk to."<br>**P5:** "When I brought up applying for an internship, my coach didn't really support it. He said it might interfere with my competition schedule and told me to 'focus on the present."<br>**P7:** "The career guidance (sport instructors) felt very general. They don't understand our situation as student. We need someone who knows how to guide us while taking into account our, class, training and competition commitments. I just hope they were more understanding and consider all these things before providing us guide in our career"<br>**P2:** "They just tell us to apply on JobStreet or LinkedIn, but we don't get help in figuring out how to use those platforms effectively as athletes with irregular schedules." |
| | Peer and social support networks | Supportive peer network<br>Resources sharing<br>Shared experience and mutual understanding | **P6:** "Some of my teammates already finished internships, so they helped me prepare my resume and gave tips. We kind of support each other because we know how different our schedule is from other students."<br>**P1: "**I once failed to compete in one of the world tournaments due to an injury and my slower recovery process caused by age. There was no mental support, and I was left behind. It made me |

| | | | |
|---|---|---|---|
| | | | realise that once you are unwell in the sports world, you are no longer considered relevant...during that time, my friends who were in the same situation or gone through similar issues help me in giving the advices and literally be 'there' for me – which makes me so grateful"<br>**P4:** "Although lecturers and coaches were so helpful in helping us (athletes), but there were time it's really hard to talk to them because they don't fully understand our schedule or what we go through as athletes. But with my teammates, it's different. We're in the same situation, so we help each other. We share links to online courses and job openings in our group chat. Even emotionally, when one of us feels overwhelmed or unsure about the future, we talk it out. It's like we've built our own support system. Without them, I don't think I would've been as motivated to think seriously about my career after sport." |

### 4.1. RQ1: What strategies do university student-athletes employ to navigate career planning as the transition from higher education and sport to the workforce?

The analysis of the codes derived from the seven participants suggests that university student-athletes are aware of the importance of career planning. The findings are discussed across two major themes: (1) dependence on sports as a career, and (2) intention to pursue non-sport-related careers. These strategies were shaped by individual ambitions, educational backgrounds, the realities of the sports industry, and institutional support. These reflect diverging post-graduation pathways and demonstrate the complexity of career decision-making during the transition from university life to the workforce.

#### 4.1.1. Dependence on Sports as a Career

Several participants expressed strong aspirations to pursue long-term careers in the sports industry. Their reliance on sport was often motivated by passion, identity, and the familiarity developed through years of involvement in athletics. Some also saw sports as a means to secure income or future career opportunities, particularly in coaching or sport education. P2, a track and field athlete enrolled in a sport-focused academic programme, noted that his peers similarly envisioned future careers within the sporting ecosystem, often in coaching or sport education:

*"Most of my friends already set their minds on pursuing a sport-related career because our program is also related to sports."*

This inclination aligns with Henriksen et al. (2020), who argued that student-athletes immersed in dual-career environments are likely to foster aspirations in both educational and sporting domains.

Participants such as P1, P3 and P6, both with over a decade of experience in their respective sports, demonstrated a desire to stay involved in athletics. However, they were also cautious about the uncertainty of sustaining a sport-based career in Malaysia which do not last as they do on Western countries. P1 (24, male, tenpin bowling), who had been competing for 18 years, expressed an enduring commitment to sports, viewing it as both a passion and a viable career path. P1 commented:

*"Yeah, we (refer to his friends as well) know it's risky and not very sustainable in the long run, especially here in Malaysia. But still, I really hope I can stay in the sports industry somehow. It's what I'm passionate about."*

The data also revealed that some participants considered sport as a secondary rather than a primary career option. For instance, P5 noted, *"I'm still thinking of playing sports as my second career for my additional sources of income."* This reflects a pragmatic orientation toward dual-career development, wherein participants sought to maintain their involvement in sport while simultaneously preparing for more stable non-sport career paths. Such responses highlight an awareness of the financial uncertainties and limited long-term viability of sport careers in Malaysia, prompting the need for alternative or parallel trajectories to ensure future economic security.

At the same time, institutional support—particularly from the Malaysian National Sports Council (MSN)—was found to reinforce the athletes' sport-oriented identities and career aspirations. Several participants reported receiving consistent financial and educational support from MSN since the age of 17 or 18, which contributed to a sense of stability and comfort within the sporting domain. This long-term support appeared to foster greater reliance on sport as a viable career pathway. As P6 (22, female, archery) explained, many of her peers chose to remain in competitive sport due to the recognition and sustained assistance they received:

*"Still, many of my friends have chosen to settle into a career in sports—most of them have been receiving financial support from MSN for years, which makes them feel that this is the right path for us."*

From Schlossberg's Transition Theory perspective, these responses reflect the role of "self" (personal identity and values), **"**situation" (contextual factors like long-term sport involvement), and "support" (from institutions like MSN) in shaping students' decision-making and coping mechanisms during transitions.

### 4.1.2. Strategy to Pursue Non-Sport-Related Careers

In contrast, several participants demonstrated clear intentions to transition into careers beyond the sports domain. Their strategies were marked by a proactive mindset, a stronger emphasis on education, and deliberate efforts to acquire transferable skills through self-initiated learning. The skills they reported developing included leadership, communication, IT literacy, and public speaking. As Bae (2023) suggests, such competencies are instrumental in fostering personal and professional development beyond the realm of sport. Acknowledging the limitations and instability associated with sport-based careers in Malaysia, these individuals took early steps to enhance their employability in alternative sectors.

P4 described her approach as one rooted in preparedness, emphasising her efforts to gain professional exposure through non-sport-related opportunities.

*"Besides training, I've been looking into professional courses and internships—something that can help me if I need to switch careers later on."*

Despite her success in sport, including winning a gold medal in an international tournament, P5 described a turning point in her second year of university when she began to shift her focus.

*"I focused more on education, and I want to succeed. So, I believed for me to succeed in making a career transition strategy, it's by further studies as a backup for a future career other than sports."*

P6 echoed this sentiment, reflecting a growing awareness of external career realities:

*"I'm trying to build a backup plan outside of sports, just in case things don't work out. That's why I'm focusing more on my studies now."*

P7, a national-level badminton player, never considered settling into a long-term career in sport, as she perceived it to be unsustainable. Consequently, she actively prepared herself by developing in-demand skills relevant to future non-athletic careers. She represented the most explicit case of self-initiated career planning, incorporating digital platforms into both her job search and skill-building efforts:

*"I started exploring and using job application platforms like LinkedIn, Indeed, and JobStreet as part of my career preparation… I equipped myself with technical and soft skills—computer skills, communication skills, time management, and skills to make connections or network with people from various backgrounds."*

These strategies reflect the "strategy" and "support" dimensions of Schlossberg's model, highlighting how individuals prepare for transition by acquiring new skills and engaging with external networks.

### 4.2. RQ2: How do the dual demands of academics and athletics impact the career preparation of student-athletes?

The dual demands of academics and athletics significantly impact the career preparation of student-athletes, presenting both challenges and opportunities. Two themes emerged from the study: (i) time constraints and limited career preparation opportunities, and (ii) psychological and emotional impacts.

#### 4.2.1. Time Constraints and Limited Career Preparation Opportunities

The dual responsibilities of academic study and competitive sport imposed significant time-related constraints on student-athletes, directly limiting their capacity to engage in traditional forms of career preparation. The participants in this study—who had spent between 8 to 18 years in their respective sports—juggled heavy academic commitments alongside intensive training schedules and frequent competitions. For many, the routine demands of sport consumed the majority of their daily lives, leaving little space for activities such as internships, campus career fairs, or part-time employment—experiences commonly associated with gaining professional exposure and career clarity in non-sport sectors.

P7, a 22-year-old female national-level badminton player with 14 years of competitive experience, described how the overlapping demands of final-year academic work and sport commitments challenged her ability to prepare for life after university. Having never competed at the international level, she felt increased pressure to establish herself beyond sport and emphasised the importance of being strategic with time. The demands of training and competing often leave little room for internships, part-time jobs, or other traditional career preparation activities. As noted in the experiences of the participants, the time devoted to

training and competitions often replaces opportunities to gain practical work experience. P7, for instance, has been pointing out more than four times how important time management is for them as athletes and students at the same time. She went to say:

*"The third factor is time management—being disciplined with our time between sports and study... particularly for those of us in our third or final year of study."*

Her statement reflects the pressing need to manage competing priorities, especially as graduation approaches and career decisions become more urgent. Similar sentiments were expressed by P5, an international-level archery athlete, who described the daily struggle of managing physical exhaustion from training alongside academic responsibilities. This often resulted in academic challenges, including difficulties in securing internship placements aligned with their field of study.

*"Sometimes I feel like I'm just rushing through assignments after training. There's not enough time to really focus on studies or look into internship"*

This pattern of compressed academic engagement was frequently reported, particularly during competitive seasons, when physical fatigue and scheduling demands made it difficult to engage meaningfully with coursework, let alone extracurricular career preparation. For some, like P2—the time demands not only limited academic engagement but also excluded them from structured career development opportunities provided by the university. He recounted a missed opportunity:

*"I wanted to join a campus career programme last semester, but training camps clashed with the dates. So, I had to skip it."*

The findings illustrate how the relentless demands of dual participation in academics and sport often marginalise student-athletes from critical career development experiences, placing them at a relative disadvantage in preparing for life beyond university.

### 4.2.2. Psychological and Emotional Impacts

The dual responsibilities of academic achievement and elite-level athletic performance place considerable psychological and emotional demands on student-athletes. For many, this pressure intensifies during periods of high-stakes competition, where the overlap of tournament schedules and academic deadlines creates a compounded sense of stress and mental fatigue. Majority participants described moments of emotional exhaustion, reduced concentration, and a general sense of being overwhelmed—particularly during major sporting events. These intense periods often led to academic disruptions, such as missing classes or struggling to complete assignments on time, which in turn generated additional anxiety about falling behind in their studies.

One recurring sentiment was the mental toll exacted by the need to constantly switch between roles—that of a student in the classroom and an athlete on the field. The participants reported that maintaining this dual identity required not only physical endurance but also a significant amount of emotional regulation. As one participant, P5, put it:

*"Emotional and mental strength play a significant role in making sure that both sports and careers stay on the right track, especially during big events or tournaments."*

This recognition highlights how emotional resilience becomes a crucial factor in managing the stress associated with balancing multiple high-performance roles. Yet, despite these challenges, participants also described a range of coping mechanisms that helped them maintain psychological stability. Some adopted proactive, task-oriented strategies, such as breaking their responsibilities into manageable goals and prioritising daily tasks. Others leaned on social support, especially from teammates who were experiencing similar struggles. These informal networks provided both emotional relief and a sense of solidarity, reinforcing the idea that they were not facing these pressures in isolation. P3, a 24-year-old male softball player explained:

*"It's not easy, but I try to stay positive and break things into small goals—one thing at a time. That helps me manage the stress."*

This methodical approach to stress management reflects a level of emotional maturity and self-awareness developed through years of balancing multiple responsibilities. These experiences resonate with Schlossberg's Transition Theory, particularly the "self" and "situation" dimensions. The "self" is reflected in athletes' internal coping resources—such as emotional regulation, resilience, and motivation—while the "situation" refers to contextual pressures like tournament timing, institutional demands, and performance expectations. In sum, the psychological and emotional impacts faced by student-athletes are substantial. While many develop effective coping mechanisms, the findings underscore the need for structured psychological support and athlete-sensitive policies within universities, aimed at easing the emotional burden of dual-career pathways and supporting long-term well-being.

### 4.3. RQ3: What role do support system (e.g., counsellor, department, coaches) play in the career preparation of student-athletes?

Support systems play a multifaceted and critical role in shaping student-athletes' career trajectories. Prior research has highlighted the importance of these systems in facilitating smooth transitions into post-athletic careers. Condello et al. (2019) and Nikander et al. (2022) emphasise that support structures—ranging from academic departments and counsellors to coaches and peers—address both the personal and professional development needs of student-athletes. A systematic review by López-Flores et al. (2021), which analysed 26 peer-reviewed articles, reinforced this by demonstrating that integrated support is key to guiding student-athletes through the complex process of career planning. The findings from this study expand on this literature by identifying three interrelated themes: (1) perceived quality and accessibility of institutional support, (2) the role of coaches and sport administrators in career guidance, and (3) the significance of peer and social support networks.

#### 4.3.1. Perceived Quality and Accessibility of Institutional Support

Participants expressed mixed experiences with institutional support structures, such as academic departments and career centres. While some described lecturers and university personnel as knowledgeable and helpful, many noted that institutional services were not fully accessible or tailored to their unique needs as dual-career athletes. A recurring issue was the inflexibility of academic systems, which often failed to accommodate athletes' training and competition schedules. For instance, while lecturers occasionally offered guidance and connected athletes with industry professionals, university-wide career programmes often excluded them—either by timing or by failing to consider their non-traditional schedules.

P4 shared how valuable expert guidance from lecturers was in shaping her career decisions:

*"Lecturers and coaches are helpful in guiding us to shape our careers because they are experts who understand which career paths suit us best. Their knowledge, expertise, and experience play a crucial role in helping us decide what is best for our future."*

However, this support was often limited to individual initiative rather than systemic design. For example, P7 described missing out on career development opportunities simply because they were scheduled during training hours. She acknowledged the structural limitations and expressed understanding of the broader academic context.

*"They held career workshops, but most of the sessions were during training hours. It's hard to attend unless you skip practice, and that's not really an option for us... But I do understand that lecturers have a lot of work to do to cater to everyone, not just me and my friends who are athletes."*

Her response reflects the recurring tension between institutional programming and the unique scheduling demands faced by student-athletes. Institutional rigidity was also evident in the lack of flexibility around academic assessments and internships. P3, a male softball player who had represented Malaysia internationally, shared his frustration at being penalised despite competing at the highest level.

*"I tried to explain to the department that I was away for an international game, but they still penalised me for missing the assignment. There's no special arrangement for athletes sometimes—it's frustrating."*

These findings underscore a need for institutional mechanisms that recognise and respond to the demands of dual-career athletes. Support, when it is present, tends to be inconsistent and dependent on individual staff members rather than integrated into formal policies. This resonates with Schlossberg's "support" factor, where inadequate institutional support complicates transitions by exacerbating existing time and emotional pressures.

### 4.3.2. Role of Coaches and Sport Administrators in Career Guidance

Coaches and sport administrators often serve as primary mentors for student-athletes, given their close proximity and frequent interactions. In several cases, they played a constructive and proactive role in promoting career awareness beyond competitive sport. Some coaches encouraged athletes to think realistically about life after sport, shared their professional networks, or acknowledged the importance of balancing academic and athletic goals. For example, P4 described how her coach provided specific advice and industry exposure:

*"My coach always reminds us that sport won't last forever. He encourages us to think about what we're good at outside of training. He even shared a contact from the sports science field for me to talk to."*

Yet, not all experiences were positive. Several participants shared how coaches prioritised short-term athletic success at the expense of long-term career planning. In some cases, coaches dismissed or discouraged athletes from pursuing internships or further study, citing potential conflicts with training schedules. This lack of support not only restricted their career development but also instilled a fear of deviating from sport-related pathways. P5 expressed frustration after raising the topic of internships with her coach:

*"When I brought up applying for an internship, my coach didn't really support it. He said it might interfere with my competition schedule and told me to 'focus on the present.'"*

Others, like P7 and P2, noted that even when career guidance was provided, it was often overly generalised and lacked contextual relevance. As P7 explained:

*"The career guidance (sport instructors) felt very general. They don't understand our situation as student. We need someone who knows how to guide us while taking into account our, class, training and competition commitments. I just hope they were more understanding and consider all these things before providing us guide in our career"*

These findings reveal a disconnect between the potential and actual role of coaches in facilitating career development. While some coaches embraced their dual role as mentors, others maintained a sport-centric view that inadvertently hindered athletes' broader professional aspirations. This inconsistency suggests the need for structured training for coaches on dual-career support, as proposed by Ryba et al. (2021) and Bae (2023). Within Schlossberg's framework, the "support" dimension here also intersects with the "situation" variable—where institutional culture, expectations, and interpersonal dynamics collectively shape the athlete's transition experience.

### 4.3.3. Peer and Social Support Networks

Among the most consistent and valuable forms of support described by participants were peer networks—informal systems formed among fellow student-athletes. These networks provided emotional reinforcement, practical advice, and affirmation, helping athletes navigate both the challenges of dual-career life and the uncertainties of future planning. Peers were often more attuned to the unique pressures of juggling academics and sport, and thus offered advice that was realistic, empathetic, and timely. P6, for instance, described how her teammates offered guidance based on their own experience:

*"Some of my teammates already finished internships, so they helped me prepare my resume and gave tips. We kind of support each other because we know how different our schedule is from other students."*

These networks extended beyond practical help to emotional well-being. P4 explained the value of shared understanding and collective coping:

*"Although lecturers and coaches were so helpful in helping us (athletes), but there were times it's really hard to talk to them because they don't fully understand our schedule or what we go through as athletes. But with my teammates, it's different. We're in the same situation, so we help each other. We share links to online courses and job openings in our group chat. Even emotionally, when one of us feels overwhelmed or unsure about the future, we talk it out. It's like we've built our own support system."*

This sense of belonging and shared experience fostered a protective space, where athletes could express vulnerability without judgment. However, some participants also noted that reliance on peers was sometimes necessitated by the absence of adequate institutional or coaching support. P1 recounted how the lack of support during an injury led to feelings of abandonment:

*"I once failed to compete in one of the world tournaments due to an injury and my slower recovery process caused by age. There was no mental support, and I was left behind. It made me realise that once you are unwell in the sports world, you are no longer considered relevant...during that time, my friends who were in the same situation or gone through similar issues help me in giving the advices and literally be 'there' for me – which makes me so grateful"*

The value of peer networks, therefore, lies not only in what they provide, but in how they compensate for gaps in formal support structures. Their role in fostering resilience and affirmational support aligns strongly with Schlossberg's theory, particularly in addressing emotional and relational aspects of transition.

## 5. Conclusion

This study looks at the strategies, challenges, and role of support systems in helping university student-athletes manage their responsibilities in both academics and sports while preparing for their future careers. The findings show how important support systems such as lecturers, coaches, and university staff are in shaping the career paths of student-athletes. In Malaysia, sports do not provide the same level of security and less sustainable career as in Western or developed countries, where athletes are often offered pensions or stable jobs after their careers. Because of this, many student-athletes choose to focus on other career options outside of sports, treating sports as a secondary career for extra income or as a personal hobby. One key takeaway from the study is the need for emotional and mental support. Many participants said they rely on their coaches, lecturers and peers to help them handle the pressures of both sports and academics. This type of support is especially important during major competitions or when dealing with setbacks, such as injuries or the limitations of ageing, which can affect their athletic performance. Despite the benefits of these support systems, inconsistencies in the level of care and guidance, particularly from coaches, were evident, leaving some athletes feeling undervalued and unsupported. For most participants, balancing both academics and athletics required a strong and reliable support system. However, many ultimately chose career paths outside of sports, as they felt the existing system was not sustainable for their long-term growth and success. Additionally, the importance of skill development, career planning, and networking opportunities was underscored, with many participants recognising the need to prepare for dual-career paths that extend beyond the sports industry.

## 6. Implications and Recommendations

Several implications can be drawn for universities, sports organisations, and policymakers that are customised for the student-athletes (Hong et al., 2022). First, sports organisations should prioritise mental health support and provide consistent care through coaches, specifically for student-athletes. Addressing their mental and emotional well-being will help them manage the challenges of balancing sports and academics. Second, universities and institutions should support student-athletes by offering academic flexibility alongside skill-based learning to prepare them for life beyond sports. This could include flexible learning options, career workshops, internships, and mentorship programs across various industries. While UPM offers flexibility for students, especially those training overseas, through online support learning (refer to Zakaria, n.d.), the arrangements differ between lecturers and courses and often change over time. This inconsistency highlights the need for clear, standardized guidelines to help student-athletes better plan and manage their academic

responsibilities. Lastly, these findings can guide policymakers in developing better strategies at institutional and national levels to safeguard student-athletes' well-being and career prospects. Clear pathways for academic accommodations during tournaments and structured programs for career transitions after sports are essential. As representatives of Malaysia's future in sports, student-athletes deserve robust policies that support both their athletic and professional journeys. As of today, most existing incentives and policies apply to active athletes, providing financial rewards and lifetime monthly pensions for Olympic medalists (refer thestar.com, 2024). However, support should go beyond monetary incentives to include career development opportunities, ensuring athletes have sustainable prospects beyond their sporting careers.

Three suggestions for future research can be proposed. Firstly, this study was limited to a single university. Future research could expand the scope of data collection to include multiple universities, providing richer and more diverse data. Secondly, future studies might consider a longitudinal approach, tracking student-athletes during their university years and following up a few years after graduation to examine their career development over time. Lastly, it is recommended to conduct quantitative research to allow for broader generalisation to a larger population of student-athletes, complementing the findings of this study.

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# TECHNOLOGY ACCEPTANCE MODEL (TAM) IN ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION (AIHEd): A SYSTEMATIC LITERATURE REVIEW

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## ABSTRACT

This systematic literature review examines the application of the Technology Acceptance Model (TAM) to artificial intelligence adoption in higher education (AIHEd). Based on a comprehensive analysis of 23 empirical studies, the research investigates TAM characteristics in AIHEd, evaluates the model's explanatory power, and identifies significant external variables. The findings validate TAM's robustness in the AIHEd context, with core relationships showing high significance rates. Trust emerges as a critical factor unique to Artificial Intelligence (AI) adoption, significantly influencing all core TAM constructs. The analysis reveals perceived enjoyment, subjective norm, and trust as the most frequently examined and significant antecedents. The study identifies methodological challenges, particularly in measuring the relationship between behavioral intention and actual usage. The geographic concentration in research suggests the need for more diverse regional perspectives. These findings contribute to both theory and practice by validating TAM's applicability to AI adoption while highlighting the need for theoretical extensions incorporating trust. The study provides practical insights for higher education institutions implementing AI technologies and suggests directions for future research in this rapidly evolving field.

**Keywords:** Technology Acceptance Model, Artificial Intelligence, Higher Education, Systematic Review, AIHEd, SLR

## 1. Introduction

The proliferation of artificial intelligence (AI) in higher education represents a transformative force in contemporary educational landscapes (Zawacki-Richter et al., 2019). As AI technologies continue to reshape learning experiences (Holmes et al., 2019), empirical evidence increasingly validates their educational value. Recent studies have demonstrated AI's positive impact on student engagement (Lo et al., 2024) and learning outcomes across diverse educational contexts (Dai et al., 2024; Wu & Yu, 2024; Zheng et al., 2023). However, the realization of these benefits fundamentally depends on effective technology adoption, which currently exhibits notable disparities across institutions and regions (Singla et al., 2024). These adoption disparities risk exacerbating existing educational inequalities (UNESCO, 2021), underscoring the critical importance of understanding AI technology adoption patterns in higher education.

The Technology Acceptance Model (TAM), introduced by Davis Davis (1989), has emerged as the predominant theoretical framework for understanding technology adoption in educational settings (Granić, 2022). Its robustness has been validated across various educational technologies. Within the burgeoning field of AI adoption research, TAM remains the most frequently applied theoretical lens. Despite the growing number of studies applying TAM to Artificial Intelligence in Higher Education (AIHEd), a systematic understanding of TAM's role in this domain remains absent (Bond et al., 2024). Several critical gaps in the literature hinder our understanding of TAM's applicability in AIHEd.

Foremost, the empirical landscape of TAM research in AIHEd remains unclear. Existing studies have not systematically examined publication trends, journal distributions, sample demographics (countries, participant identities), and the specific AI technologies investigated. Without this comprehensive overview, it is difficult to assess the scope and focus of TAM-based AIHEd research (Granic & Marangunic, 2019).

Furthermore, uncertainty persists regarding the extent to which TAM's internal hypothesized relationships have been empirically tested and validated. While numerous studies have applied TAM to AI adoption in higher education, no existing research has quantitatively assessed the frequency with which TAM hypotheses are tested (hypothesis testing rate) or the extent to which they produce statistically significant results (significance rate). The hypothesis testing rate reflects the extent to which TAM's internal hypothesized relationships have been investigated in AIHEd studies, while the significance rate provides insight into the explanatory power of these relationships in predicting AI adoption (Lee et al., 2003). Without systematically compiled data on these statistical metrics, it remains unclear whether TAM constructs are consistently tested and whether they reliably explain AI adoption in higher education

Additionally, the incorporation of external variables into TAM for AIHEd and their empirical validation remain unclear. While many studies extend TAM by introducing additional variables (e.g., Al Darayseh, 2023; Lai et al., 2023; Rahman et al., 2023; Zou et al., 2023), there is no systematic synthesis of which variables have been incorporated, how frequently they have been tested, and whether they yield statistically significant results. Without this knowledge, it is difficult to determine which external factors consistently influence AI acceptance beyond traditional TAM constructs.

To address these research gaps, this study aims to systematically analyze the application of TAM in AI adoption research within higher education (AIHEd). The study pursues three interconnected objectives:

First, this research maps the empirical landscape of TAM research in AIHEd by systematically examining publication trends, journal distributions, sample demographics (countries, participant identities), and the specific AI technologies investigated. This analysis provides a structured overview of how TAM has been applied in AIHEd and identifies existing research patterns.

Second, the study evaluates the extent to which TAM's internal hypothesized relationships have been empirically tested and validated in AIHEd by quantifying hypothesis testing rates and significance rates reported in existing studies. This assessment determines the consistency of TAM's application and its predictive strength in explaining AI adoption in higher education.

Finally, this investigation identifies and assesses the significance of external variables incorporated into TAM for AIHEd by synthesizing which external factors have been integrated, how frequently they have been tested, and whether their relationships with TAM constructs have yielded statistically significant results. This objective clarifies the role of external variables in extending TAM for AI adoption in higher education and provides insights into their influence beyond the model's traditional constructs.

## 2. Literature Review

### 2.1. Artificial Intelligence in Higher Education (AIHEd)

Artificial intelligence (AI) has emerged as a transformative force in higher education. Drawing from Hwang et al.'s (2020) definition of Artificial Intelligence in Education (AIEd) "the use of AI technologies or applications in educational settings to facilitate teaching, learning, or decision-making" we define Artificial Intelligence in Higher Education (AIHEd) as the application of AI technologies in higher educational contexts to facilitate teaching, learning, or decision-making. This definition encompasses four key dimensions: (1) technology must be AI-based, (2) the educational context is specifically higher education, (3) target users include students, faculty, and administrative staff, and (4) the purpose is to enhance teaching, learning, or education-related decision-making processes. A recent meta-systematic review by Bond et al. (2024) has identified multiple significant benefits of AI integration in higher education. These benefits include the delivery of personalized learning experiences, enhanced understanding of student learning patterns, improved learning outcomes, reduced administrative burden for educators, increased educational equity, and more precise assessment and feedback mechanisms. The documented potential of AI to transform higher education underscores the importance of understanding factors that influence its adoption and implementation.

### 2.2. TAM in Education

Understanding the factors influencing the acceptance of AI in education is critical, as existing research demonstrates AI's potential to enhance educational processes (Urban et al., 2024). By recognizing and addressing these factors, educational institutions can more effectively integrate AI technologies.

Several Information Systems (IS) theories and models are used to understand IS acceptance, including the Innovation Diffusion Theory (IDT) by Rogers (1962), TAM by Davis (1989), the Theory of Planned Behavior (TPB) by Ajzen (1991), and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). Among these, TAM

is the most commonly adopted model in education (Granić & Marangunić, 2019a; Šumak et al., 2011) and the most frequently used model for assessing user acceptance of AI technologies (Kelly et al., 2023).

The original TAM framework comprises five core constructs: perceived usefulness (PU), perceived ease of use (PEU), attitude toward using (ATT), behavioral intention to use (BI), and actual system use (AU). Davis et al. (1989) define PU as "the degree to which a person believes that using a particular system would enhance his or her job performance," and PEU as "the degree to which a person believes that using a particular system would be free of effort." BI represents future intentions to adopt technology (Venkatesh & Bala, 2008), while AU typically measures actual usage frequency or duration (Venkatesh & Bala, 2008). ATT specifically addresses attitudes toward using technology, rather than attitudes toward the technology itself (Ajzen, 1991). Later iterations of TAM (Venkatesh & Bala, 2008; Venkatesh & Davis, 2000) eliminated ATT and posited that PEU directly influences BI.

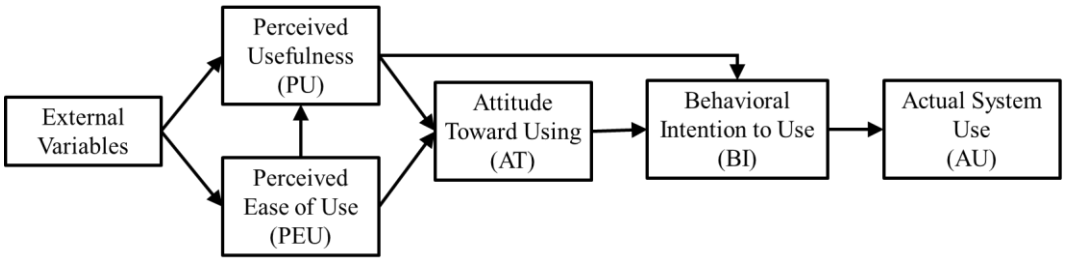


**Figure 1: TAM Model (Davis et al., 1989)**

The extensive use of the TAM model has led to numerous literature reviews (Al-Emran & Granić, 2021; Alomary & Woollard, 2015; Alshammari & Rosli, 2020; Chang et al., 2010; Chuttur, 2009; Doulani, 2019; Gupta et al., 2022; Lee et al., 2003; Legris et al., 2003; Marangunić & Granić, 2015; Mortenson & Vidgen, 2016; Silva, 2007; Turner et al., 2010; Yucel & Gulbahar, 2013) that have significantly contributed to our understanding of TAM's applications. Lee et al.'s (2003) comprehensive review of TAM research in general technology acceptance systematically documented the empirical validation of relationships between major TAM variables. Their analysis of hypothesis testing results showed that the relationship between perceived ease of use (PEU) and behavioral intention (BI) was significant in 63 out of 82 studies. Similarly, the relationship between behavioral intention (BI) and actual use (AU) showed significance in 13 out of 15 studies. Other hypothesized relationships, such as those between PU-BI and PEU-BI, also demonstrated consistent statistical significance across reviewed studies. Scherer et al. (2019) conducted a meta-analytic structural equation modeling (MASEM) study synthesizing 124 correlation matrices from 114 empirical TAM studies in education.Their findings confirmed that TAM effectively explains technology acceptance in educational settings, with PU and PEU as strong predictors of BI and AU.

Research using the TAM model in education covers a wide range of topics, including technology adoption (Granić & Marangunić, 2019b), online learning (Mustafa & Garcia, 2021), mobile learning (Al-Emran et al., 2018; Liu et al., 2024; Mugo et al., 2017), learning management systems (Cavus et al., 2022), higher education (Rosli et al., 2022), e-learning (Abdullah & Ward, 2016), and technology adoption by teachers (Scherer et al., 2019). Despite the varied themes, several consistent findings emerge regarding study subjects, sample regions, research methodologies, TAM applications, and commonly used external variables. Students are the most frequently surveyed subjects, higher education is the most examined

level, Asian countries dominate sample regions, quantitative methods are predominantly used, and TAM is often employed in an extended form. These findings deepen our understanding of TAM's application in education.

However, differences exist in the types of technologies studied and the most common external variables. For example, Mustafa and Garcia (2021) found that course information, satisfaction, system quality, and academic performance are essential external variables in online learning. In contrast, Rosli et al., (2022) identified self-efficacy, subjective norms, experience, and enjoyment as critical variables in higher education technology adoption. Similarly, Abdullah & Ward (2016) highlighted self-efficacy, subjective norm, enjoyment, computer anxiety, and experience in e-learning adoption. These differences suggest that the characteristics of different educational technologies influence the external variables extending TAM.

While existing reviews have covered TAM's application in various educational technologies, a gap remains in the literature regarding its application in AI in higher education domain. This gap prevents us from identifying the most common external variables in TAM studies and understanding the outcomes of hypothesis tests in AI in higher education domain. Therefore, examining the prevalent external variables in studies applying TAM to AI in higher education and evaluating the results of these hypothesis tests is necessary.

## 3. Method

### 3.1. Search Strategy and Protocol

The literature search encompassed four comprehensive academic databases: Web of Science Core Collection (WOS), Scopus, Education Resources Information Center (ERIC), and IEEE Xplore. The search protocol integrated three conceptual components. The first component focused on Technology Acceptance Model terminology, including "TAM" and "technology acceptance model". The second component encompassed artificial intelligence terms such as "artificial intelligence", "machine intelligence", "intelligent support", "intelligent virtual reality", "chatbot*", "machine learning", "automated tutor", "personal tutor*", "intelligent agent*", "expert system", "neural network", "natural language processing", "intelligent tutor*", "adaptive learning system*", "adaptive educational system*", "adaptive testing", "decision trees", "clustering", "logistic regression", "adaptive system*", "Chatbot*", and "ChatGPT*". The third component covered educational context indicators including "education", "learner", "student", "teacher", and "instructor". This comprehensive search framework was informed by established systematic reviews in technology acceptance (Granic & Marangunic, 2019), artificial intelligence (Bond et al., 2024; Labadze et al., 2023), and educational research (Labadze et al., 2023).

Database-specific search strings were strategically developed to optimize each platform's unique search capabilities. For Web of Science, topic (TS) fields were utilized for content matching and Web of Science category (WC) fields for subject classification. Scopus searches incorporated title, abstract, keyword, and author fields (TITLE-ABS-KEY-AUTH) for comprehensive coverage. ERIC searches were configured with peer-review filters, while IEEE Xplore searches were optimized for abstract-level matching. The search was executed on April 8, 2024, without temporal restrictions, targeting peer-reviewed content in English.

### 3.2. Eligibility Criteria

The screening process followed a two-phase approach with hierarchical criteria. The first phase established initial screening requirements. Studies were required to be published in English to ensure accurate interpretation and analysis. The temporal scope extended from 1986, marking the introduction of TAM by Fred Davis (1986), through 2024. To maintain scholarly rigor, only peer-reviewed articles from academic journals were considered.

Meanwhile, the second phase implemented detailed content eligibility criteria. For inclusion, studies must have examined AI technologies or applications as the subject of technology adoption research. These AI applications needed to be specifically employed for educational purposes. The theoretical framework must have utilized either the original TAM or an extended version (TAM+) as its core model. Studies were required to be situated within higher educational contexts and employ quantitative empirical methodologies with hypothesis testing. Furthermore, all studies must have incorporated the three core TAM variables: Perceived Usefulness (PU), Perceived Ease of Use (PEU), and Behavioral Intention (BI).

Studies were excluded based on several criteria: examination of non-AI technologies, application of TAM in non-higher educational contexts, utilization of AI technologies outside educational purposes, and use of theoretical models other than TAM as the primary framework. Opinion pieces, editorial content, and non-empirical research were removed from consideration. Articles lacking hypothesis testing results or missing any of the three core variables (PU, PEU, BI) were excluded. Additionally, retracted articles and those suspected of plagiarism were eliminated from the analysis.

### 3.3. Study Selection Process

The initial database search yielded 516 articles, with distinct distributions across databases: Web of Science Core Collection (n=167), Scopus (n=282), Education Resources Information Center (ERIC) (n=34), and IEEE Xplore (n=33). The preliminary screening process involved removing 157 duplicate entries identified through cross-database comparison. Additionally, 4 book chapters were excluded to maintain the focus on peer-reviewed journal articles and conference proceedings, resulting in 355 unique publications for further evaluation. The title and abstract screening phase rigorously applied the established inclusion criteria, leading to the exclusion of 278 papers that did not meet the specified requirements. The remaining 77 papers underwent a comprehensive full-text assessment, resulting in the exclusion of 41 additional articles. This systematic screening process identified 36 articles for detailed quality evaluation.

### 3.4. Quality Assessment Protocol

The quality appraisal of the 36 articles followed evaluation criteria from recent studies by Claro et al. (2024) and Zhao et al. (2021). The assessment incorporated quality criteria across three dimensions: (1) Theoretical dimension examined whether concepts were clearly defined, research objectives were explicitly specified, and the study design effectively aligned with achieving these objectives. (2) Methodological dimension assessed whether research instruments were clearly described and based on the study design, whether the instruments were validated, whether the instruments were provided with face validity, and whether the sample was adequately described with sufficient size for the proposed analyses. (3) Findings dimension evaluated whether research questions were comprehensively answered, and whether conclusions were clearly described and supported by the results.

Each criterion was evaluated using a three-point scale: "Yes, complies" (1 point), "Partially complies" (0.5 points), and "Does not comply" (0 points). Publications needed to achieve a minimum score of 7 points across the nine criteria to qualify for inclusion in the analysis. This

quality assessment process resulted in the exclusion of 13 articles that fell below the quality threshold, yielding 23 articles for final analysis. This data extraction process is illustrated in a PRISMA flow diagram (Page et al., 2021) in Figure 2.

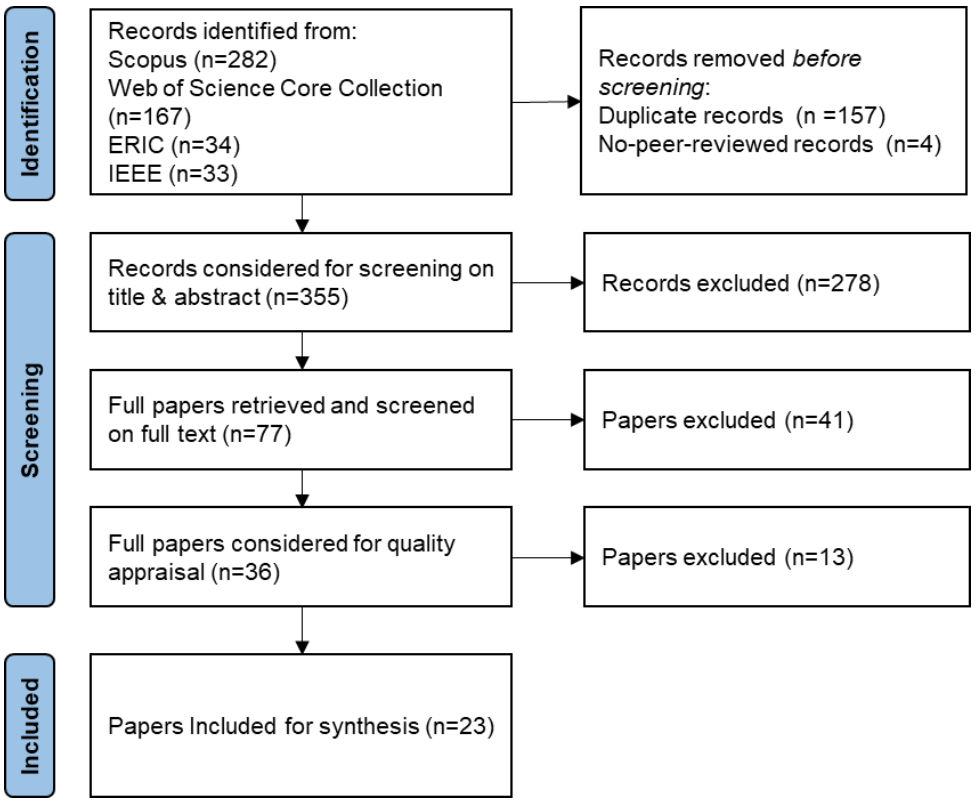


**Figure 2: PRISMA Flow: Data Extraction Procedure**

### 3.5. Coding Process of Included Articles

A specific coding scheme for data extraction, detailed in Table 1, was developed. Independent coding by researchers ensured accurate data collection, and discrepancies were resolved through regular meetings.

**Table 1: The coding scheme of data extraction**

| | |
|---|---|
| **Author** | The name(s) of the article's author(s) |
| **Year of Publication** | The year the article was published |
| **Source of Literature** | The journal or conference where the article appeared |
| **Geographical location** | The country or region where the study was conducted |
| **Participant Identity** | The roles or positions of individuals participating in the study. |
| **AI Technology** | The type of AI technology investigated. |
| **Predictor Variables** | Identifies the factors predicting the core constructs of PEU, PU, ATT, and BI. |
| **Hypothesis Testing Outcomes** | The results of the hypothesis tests. |

### 3.5. Statistical approaches

Descriptive statistical methods were employed to analyze the empirical application of TAM in AIHEd, following Lee et al. (2003) and Xue et al. (2024). The analysis mapped publication trends, journal distributions, sample demographics (e.g., country, participant type), and AI

technologies studied, providing an overview of TAM research patterns. Additionally, hypothesis testing rates and significance rates were quantified to assess the consistency and predictive strength of TAM in AI adoption. External variables incorporated into TAM were also examined by evaluating their frequency and statistical significance.

# 4. Results

## 4.1. Mapping the Empirical Landscape of TAM Research in AIHE (Objective 1)

In this section, we systematically examine the publication trends, journal distributions, sample demographics, and the AI technologies investigated in the studies reviewed. This provides a structured overview of how TAM has been applied in AIHEd and highlights existing research patterns. The analysis identifies key trends in the application of TAM.

In terms of publication trends, the temporal analysis revealed a rapidly growing research interest in AI technology adoption in higher education. Specifically, 12 studies were published in 2024, 9 studies in 2023, and only 2 in 2022. This indicates a significant increase in publications over the past two years, reflecting the rising academic focus on AI adoption in higher education.

Regarding journal distributions, the studies were published across 7 different scholarly journals, reflecting a diverse academic interest in the field. *Education and Information Technologies* published the highest number of articles (n=3), followed by *International Journal of Human-Computer Interaction*, *Computer Assisted Language Learning*, *Computers and Education: Artificial Intelligence*, and *International Journal of Educational Technology in Higher Education* with two articles each. Other journals, such as *Psychology Learning and Teaching* and *IEEE Access*, contributed single articles, showcasing the multidisciplinary appeal of this research area.

In terms of sample demographics, the analysis of the 23 studies revealed research spanning across 13 countries, with a dominant representation from Asia. China contributed the largest number (n=7), followed by the UAE (n=3) and Bangladesh (n=2). Other regions, such as Europe, also provided contributions, with Germany (n=2) and Turkey (n=1). Geographically, the study shows significant global diversity, demonstrating the widespread interest in this topic. Regarding participant identities, the majority of studies (n=16) focused on students as the population, while pre-service teachers were examined in three studies. Additionally, two studies explored learners and two focused on teachers, emphasizing the importance of understanding student perspectives in the context of educational research. It is important to note that these participants refer to those in the studies reviewed, not participants in our own research.

In terms of AI technologies investigated, the studies covered a wide range of applications, with ChatGPT being the most frequently studied technology (n=8). AI-powered chatbots, including academic advising chatbots, were featured in two studies. Other technologies explored included GPT applications, AI-based teacher-bots, AI-based robots, voice assistants, AI-based applications, AI-powered speech evaluation programs, and smart learning platforms, illustrating the extensive scope of AI technologies in education.

### 4.2. Evaluating the Internal Relationships of TAM in AIHEd (Objective 2)

This section assesses the extent to which TAM's internal hypothesized relationships have been empirically tested and validated in AIHEd. We quantify the hypothesis testing rates and significance rates reported in the studies, evaluating the consistency of TAM's application and its predictive strength in explaining AI adoption in higher education. This assessment provides insights into the validity and robustness of TAM's internal constructs within the AIHEd context.

Table 2 summarizes the results of testing 23 hypotheses related to TAM in the AIHEd domain. Figure 3 illustrates both the testing rates and significance rates for these original TAM hypotheses. Among the hypothesized relationships, PU→BI demonstrates the highest testing rate (87%), followed by PEU→BI (78%), and PEU→PU (55%). The relationship BI→AU shows the lowest testing rate at 33%. Regarding significance rates, three relationships—PU→AT, AT→BI, and BI→AU—achieve 100% significance. Other relationships show varying levels of significance: PEU→PU (87%), PU→BI (80%), PEU→AT (75%), and PEU→BI (72%). Table 3 shows the summary of these hypotheses.

**Table 2: The Results of Hypothesis Testing between major TAM variables**

| Authors and year | PEU toPU | PEU toAT | PEU toBI | PU toAT | PU toBI | AT toBI | BI toAU |
|---|---|---|---|---|---|---|---|
| (Al Shamsi et al., 2022) | YES | X | YES | X | YES | X | YES |
| (Albayati, 2024) | YES | YES | NO | YES | NO | YES | X |
| (Algerafi et al., 2023) | YES | X | YES | X | YES | X | X |
| (Alrishan, 2023) | X | X | YES | X | YES | X | X |
| (Awal & Haque, 2024) | X | X | YES (-) | X | NO | X | YES |
| (Ayanwale & Molefi, 2024) | X | X | NO | X | NO | X | X |
| (Bilquise et al., 2023) | X | X | YES | X | NO | X | X |
| (Dehghani & Mashhadi, 2024) | YES | X | YES | X | YES | X | X |
| (Esiyok et al., 2024) | YES | X | YES | X | YES | X | YES |
| (Gado et al., 2022) | X | YES | X | YES | YES | YES | X |
| (Lai et al., 2023) | NO | X | NO | X | YES | X | X |
| (Liu et al., 2024) | YES | X | NO | X | YES | X | YES |
| (Liu & Ma, 2024) | YES | NO | X | YES | X | YES | YES |
| (Liu & Huang, 2024) | YES | X | YES | X | YES | X | X |
| (Ma & Lei, 2024) | YES | X | YES | X | YES | X | X |
| (Masa'deh et al., 2024) | X | YES | X | YES | YES | YES | X |
| (Pillai et al., 2024) | NO | X | YES | X | YES | X | YES |
| (Rahman et al., 2023) | X | YES | X | YES | X | YES | X |
| (Sukkeewan et al., 2024) | YES | YES | YES | YES | YES | YES | X |
| (Tiwari et al., 2023) | X | NO | X | YES | X | YES | X |
| (Zhang et al., 2023) | YES | X | YES | X | YES | X | X |
| (Zou et al., 2023) | YES | X | NO | X | YES | X | X |
| (Zou & Huang, 2023) | YES | YES | YES | YES | YES | YES | X |

Note: The symbols in the results column indicate: YES = significant positive test result; YES (-) = significant negative test result; NO = non-significant test result; X = no hypothesis test conducted. Abbreviations: PEU = Perceived Ease of Use; PU = Perceived Usefulness; AT = Attitude; BI = Behavioral Intention; AU = Actual Use.

**Table 3: Summary of Hypotheses between Major TAM variables**

| Hypotheses | PEU →PU | PEU →AT | PEU →BI | PU →AT | PU →BI | AT →BI | BI →AU |
|---|---|---|---|---|---|---|---|
| Positive-Significant hypothesis | 13 | 6 | 12 | 8 | 16 | 8 | 6 |
| Negative-significant hypothesis | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Non-significant hypothesis | 2 | 2 | 5 | 0 | 4 | 0 | 0 |
| Not tested | 8 | 15 | 5 | 15 | 3 | 15 | 17 |

| Hypotheses | PEU →PU | PEU →AT | PEU →BI | PU →AT | PU →BI | AT →BI | BI →AU |
|---|---|---|---|---|---|---|---|
| Total | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Total hypotheses examined | 15 | 8 | 18 | 8 | 20 | 8 | 6 |
| Total no. of significant hypothesis | 13 | 6 | 13 | 8 | 16 | 8 | 6 |
| Hypothesis testing rates (%) | 65 | 35 | 78 | 35 | 87 | 35 | 26 |
| Significance rate of hypothesis (%) | 87 | 75 | 72 | 100 | 80 | 100 | 100 |

Note. PEU = Perceived Ease of Use; PU = Perceived Usefulness; AT = Attitude; BI = Behavioral Intention; AU = Actual Use.

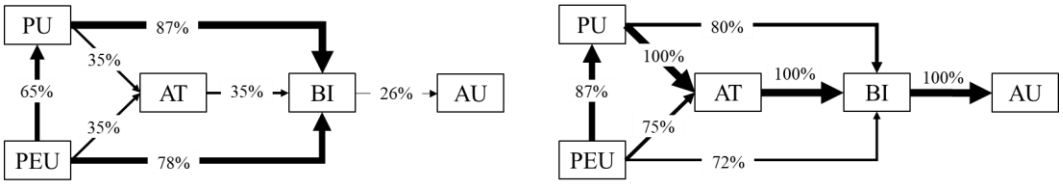


**Figure 3: Testing Rates (Left) and Significance Rate (Right) of TAM Internal Hypotheses in AIHEd**

### 4.2. Identifying and Assessing the Role of External Variables in TAM for AIHEd (Objective 3)

In this section, we identify and evaluate the external variables incorporated into TAM for AIHEd. This section synthesizes which external factors have been integrated into TAM, the frequency with which they have been tested, and the statistical significance of their relationships with TAM constructs. We assess the impact of these external variables on extending the traditional TAM framework for AI adoption in higher education, offering insights into their role and influence.

Figure 4 presents a comprehensive overview of all antecedents and their hypothesis testing outcomes for each TAM core construct in AIHEd. The three most frequently examined antecedents across all TAM constructs were perceived enjoyment (N=12, 9 significant tests, 75% significance rate), subjective norm (N=11, 8 significant tests, 73% significance rate), and trust (N=9, 8 significant tests, 89% significance rate). For Antecedents of PU, subjective norm emerges as the most frequently tested variable (N=5), showing an 80% significance rate (4 significant tests). Perceived enjoyment (N=3) and output quality (N=2) follow in testing frequency, both achieving 100% significance rates. Additional antecedents include computer self-efficacy, system quality, information quality, and perceived fairness, though tested less frequently. Among Antecedents of PEU, subjective norm leads in testing frequency (N=6) with a 67% significance rate (4 significant tests), followed by self-efficacy (N=4, 50% significance rate) and anxiety (N=3, 33% significance rate). The analysis also identified other antecedents such as facilitating conditions, computer experience, and compatibility, each with varying testing frequencies and significance rates. For Antecedents of ATT, credibility was tested twice, showing 100% significance rate. Other variables including anxiety, compatibility, and facilitating conditions were also examined, though less frequently. Regarding Antecedents of BI, trust (N=5) and subjective norm (N=4) were most frequently tested, demonstrating strong significance rates of 80% and 75% respectively. The analysis also revealed additional antecedents including perceived risk, computer anxiety, and facilitating conditions, each contributing to our understanding of behavioral intention in AIHEd contexts.

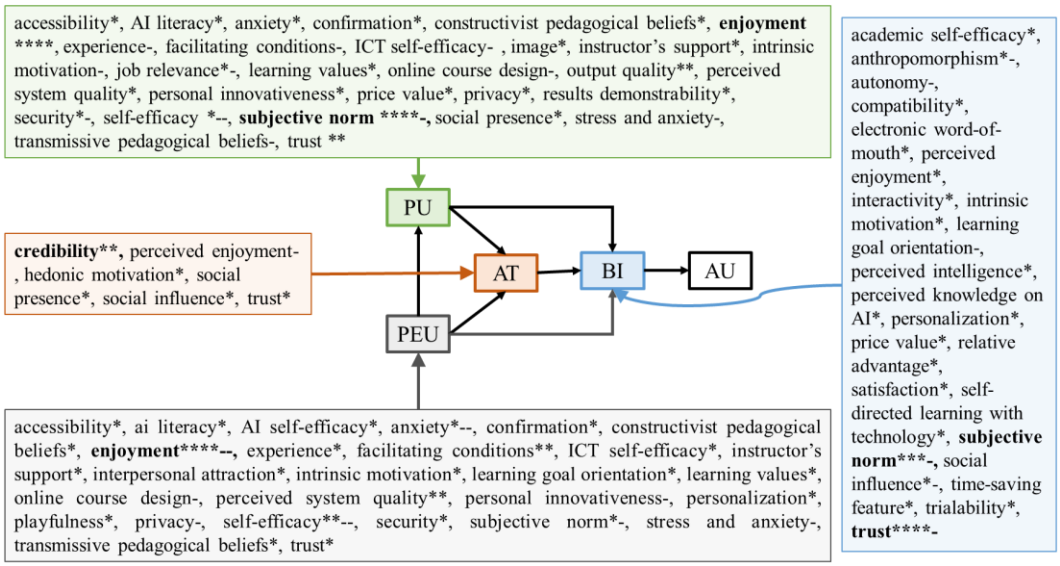


**Figure 4: Hypothesis Testing Outcomes of the Antecedents of the TAM Core Constructs in AIHEd**

*Note*: Each * indicates a significant test result; the more *, the more significant results. Each - indicates a non-significant test result; the more -, the more non-significant results.

## 5. Discussion

In this section, we discuss the main findings of the study, highlighting the significant insights derived from the empirical landscape of TAM research, the validation of TAM's internal relationships, and the role of external variables in extending TAM for AI adoption in higher education.

### 5.1. Empirical Landscape of TAM Research in AIHEd (Objective 1)

The analysis shows a significant surge in research interest, with over 90% of studies published in 2023 and 2024. This growth reflects the rapid emergence of AI technologies in higher education, particularly following the release of ChatGPT. The geographical distribution reveals a strong predominance of studies from Asia, especially China, which is consistent with patterns observed in previous non-AI technology adoption research (Xue et al., 2024). This suggests that traditional trends in technology adoption continue to shape AI adoption studies in higher education.

However, the heavy concentration of research in Asian regions limits the global representativeness of findings, potentially overlooking cultural and institutional variations in AI adoption. Future research should explore the moderating effects of macro-level factors such as cultural dimensions, national economic development, and types of educational systems. Cross-cultural and cross-institutional analyses would help clarify how these factors influence the relationships between TAM constructs and AI adoption, leading to a more comprehensive understanding of AI adoption in diverse educational contexts.

### 5.2. Internal Relationships of TAM in AIHEd (Objective 2)

The analysis of original TAM hypotheses reveals several important findings. The high significance rates for core relationships (PU→AT, AT→BI, BI→AU at 100%) strongly validate TAM's applicability in the AIHEd context. However, the varying testing rates, from 87% (PU→BI) to 33% (BI→AU), align with patterns observed in earlier TAM research (Lee et al., 2003). The lower testing rate for BI→AU is particularly noteworthy, as it represents a critical gap in understanding the translation of adoption intentions into actual usage behaviors. This limited testing of the BI→AU relationship likely stems from methodological challenges. Theoretically, measuring this relationship requires two time points: one for measuring behavioral intention (BI) and a later point for measuring actual usage (AU) (Jeyaraj et al., 2023). However, most studies employ anonymous cross-sectional surveys, which make it difficult to match individual responses across time points. While some researchers attempt to assess both BI and AU through single-time surveys, this approach contradicts the temporal nature of the BI→AU relationship, as current usage cannot logically represent future behavioral intentions. To address this methodological challenge, future studies should either employ longitudinal designs with participant matching mechanisms or develop alternative constructs that better capture the temporal relationship between intention and behavior.

### 5.3. External Variables in TAM for AIHEd (Objective 3)

Our research reveals that perceived enjoyment, subjective norm, and trust are the three most frequently utilized antecedents of TAM. The prominence of enjoyment and subjective norm aligns with findings by Abdullah and Ward (2016) in e-learning and Rosli et al., (2022) in higher education. This consistency is likely due to subjective norm being an antecedent for PU in both TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008), while enjoyment is an antecedent for PEU in TAM3. A notable discovery of this study is the significant role of trust, which is not only one of the top three most frequently used antecedents but also the only one that significantly predicts all four core constructs: PEU, PU, AT, and BI. This contrasts with previous studies in other educational domains, such as Mustafa and Garcia (2021) in online learning and Abdullah and Ward (2016) in e-learning, where trust was not among the most frequently used antecedents. This suggests that trust plays a uniquely critical role in AI acceptance in education. In traditional TAM frameworks, particularly TAM3, trust is not explicitly included as a construct. Given its significant predictive power across all four TAM constructs in the AIHEd context, future iterations of TAM should incorporate trust to better explain AI acceptance and use in education. This inclusion could address gaps in understanding user acceptance of AI technologies, where issues of data privacy, security, and reliability are paramount. As AI applications in education evolve, understanding the role of trust will be crucial for developing effective strategies to foster acceptance and integration of these technologies in educational environments.

### 5.4. Significance of Research Findings

Through achieving the first research objective of mapping the empirical landscape of TAM in AIHEd, this study establishes the field as a growing research hotspot, with a significant increase in the volume of publications in recent years. This trend underscores the rising academic interest in AI adoption in higher education. The study offers valuable guidance for new researchers, particularly in terms of selecting relevant journals for publication, highlighting key journals in the field. Additionally, it identifies critical research gaps, including the predominance of studies focusing on student populations, the geographical concentration in Asia, and the limited examination of AI technologies beyond ChatGPT. These

gaps suggest important directions for future research, such as exploring non-student populations, expanding research to regions outside Asia, and investigating other AI technologies used in higher education.

In meeting the second research objective of evaluating TAM's internal relationships in AIHEd, this study affirms the stability of TAM's core hypotheses within the context of AI adoption in education. The findings reinforce the reliability of TAM as a theoretical framework for understanding how AI technologies are adopted in educational settings. However, the study also highlights areas where TAM may need refinement, especially in capturing the relationship between behavioral intention and actual usage of AI technologies. This suggests that future research should refine TAM to better address the complexities and unique aspects of AI adoption in higher education, providing further empirical support for model adjustments.

In achieving the third research objective of identifying and assessing the role of external variables in TAM for AIHEd, this study demonstrates the importance of factors such as trust, perceived enjoyment, and subjective norm in influencing AI adoption decisions. These findings highlight the need to extend the TAM framework to include these external variables, offering a more comprehensive understanding of the factors that shape AI technology acceptance. The study also emphasizes the relationships between these external variables and TAM constructs, suggesting that these factors play a crucial role in the adoption process and should be considered in future research and practice to improve the model's explanatory power and relevance in educational contexts.

## 6. Limitations and Future Research

This systematic literature review has several limitations that suggest directions for future research. In terms of literature search, we only included English-language publications, potentially missing valuable research published in other languages. Future reviews should expand the language scope to include databases from various regions, providing a more comprehensive understanding of AI adoption patterns. Additionally, given the rapidly evolving nature of AI technology in higher education, our focus on peer-reviewed journal articles may have excluded emerging research published in conference proceedings or preprint platforms, limiting our ability to capture the most recent developments in this fast-moving field. Given the field's rapid development, researchers should consider including conference proceedings and preprint articles to capture emerging trends.

Methodologically, while this systematic literature review approach provides valuable insights into research patterns and hypothesis testing outcomes, it lacks the quantitative rigor of meta-analysis. This limitation prevents us from estimating effect sizes and examining potential moderating effects across studies. Future studies should employ meta-analytic approaches to provide quantitative assessments of effect sizes and examine potential moderating effects. Furthermore, although our analysis suggests the importance of incorporating trust into traditional TAM frameworks, our approach cannot statistically evaluate which specific model extension would be most effective. The systematic literature review methodology prevents us from comparing competing models that integrate trust in different ways. To address this limitation, future research should employ meta-structural equation modeling (meta-SEM) to statistically compare competing TAM extensions that incorporate trust in different ways, helping identify the most effective theoretical framework for understanding AI adoption in higher education.

## 7. Conclusions

This systematic literature review advances understanding of AI adoption in higher education through the TAM framework by synthesizing 23 empirical studies. Our analysis validates TAM's applicability in the AIHEd context while revealing several distinctive features. First, the high significance rates of core TAM relationships, particularly PU→AT, AT→BI, and BI→AU (all at 100%), demonstrate the model's robustness in explaining AI adoption. Second, we identify trust as a crucial factor unique to AI adoption, significantly influencing all core TAM constructs - a pattern not observed in previous educational technology studies. Third, our findings highlight the consistent importance of both hedonic (enjoyment) and social (subjective norm) factors in AI adoption decisions.

The temporal and geographical analysis reveals rapidly growing research interest, with over 90% of studies published in 2023-2024, though with notable geographic concentration. This pattern reflects both the accelerating integration of AI in higher education and the need for more diverse regional perspectives. As AI continues to transform higher education, understanding its adoption patterns becomes increasingly critical for ensuring equitable and effective implementation. This review provides a foundation for future research while offering practical insights for institutions navigating the complex landscape of AI integration in higher education.

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Not applicable

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# EMPOWERING STUDENT LEADERSHIP IN HIGHER EDUCATION: A LITERATURE REVIEW ON KEY COMPETENCIES FOR EFFECTIVE LEADERSHIP

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## ABSTRACT

Effective leadership is essential for the success of student organizations in higher education, as it involves guiding and motivating members toward shared goals. While student leadership can foster teamwork and engagement, many student leaders face challenges in acquiring the necessary competencies to lead effectively. This study aims to systematically review and synthesize leadership literature to identify five key competencies that empower effective student leadership in higher education institutions: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. A systematic literature review was conducted using the PRISMA framework to analyze 68 peer-reviewed articles from Web of Science and Scopus published over the past ten years. Thematic analysis revealed that these five competencies consistently enhance leadership effectiveness by promoting unity, strengthening team engagement, and fostering responsible student leadership. The findings emphasize the importance of embedding these competencies into student development programs to prepare student leaders for academic, organizational, and societal impact.

**Keywords:** student leadership, leadership competencies, tertiary education, thematic analysis, student development

## 1. Introduction

Leadership is a critical skill for students navigating the complexities of higher education institutions (HEIs). In today's rapidly evolving global environment, student leadership is not only instrumental in shaping academic and organizational performance but also in fostering personal development, self-empowerment, and civic responsibility (Northouse, 2016; Pascarella & Terenzini, 2005). Effective student leaders are those who can build strong teams, communicate vision, navigate organizational dynamics, and engage with a diverse range of individuals in inclusive and ethical ways (Goleman, 2001; Komives et al., 2005). However, while leadership is often encouraged through co-curricular and student-led initiatives, the development of key leadership competencies remains uneven. This study addresses this gap by conducting a systematic literature review to identify and synthesize five key competencies that consistently contribute to effective student leadership: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. These competencies form the foundation of a holistic leadership model aimed at empowering student leaders in diverse higher education contexts.

HEIs plays a pivotal role in cultivating future leaders. It is within this environment that students are provided with the platforms and opportunities to engage in leadership activities, including student government, clubs, peer mentoring, and co-curricular programs (Astin, 1993; Bryman, 2007). These settings allow students to experiment with leadership styles, test decision-making strategies, and develop self-confidence (Kouzes & Posner, 2017). However, leadership development in HEIs remains uneven, particularly in terms of how well institutions support the cultivation of key competencies that shape effective leadership behaviors (Leithwood et al., 2008; Mahoney, Cairns, & Farmer, 2003).

Various studies have emphasized the importance of competencies such as communication, interpersonal intelligence, critical thinking, and emotional regulation in shaping leadership performance (Day & Sammons, 2016; Boyatzis, 1998; Goleman, 2001). Yet, despite a growing body of literature, there is limited consensus on which specific competencies are most central for student leadership within the higher education context, particularly in terms of practical implementation and institutional support (Dugan & Komives, 2010; Cress et al., 2001). Moreover, while leadership theory is well established, there remains a gap in synthesizing which key competencies are consistently supported across scholarly research and how they can be embedded into leadership development programs for students (Uaikhanova et al., 2022; Zorina et al. 2018).

Despite the increasing attention given to leadership development in HEIs, few studies have provided a comprehensive synthesis of the specific competencies most essential for effective student leadership. Moreover, existing research tends to address these skills in isolation, lacking a unified framework that integrates communicaiton, interpersonal abilities, critical thinking, ICT proficiency, and emotional intelligence. This study address this gap by thematically reviewing recent literature to identify and contextualize these five key competencies.

In response to this gap, the present study focuses on identifying and analyzing five key competencies that have been consistently highlighted across leadership development frameworks in HEIs: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. These competencies represent a synthesis of the most frequently cited traits and skills associated with effective student

leadership, drawn from both classical and contemporary leadership literature (Bass, 1990; Yukl, 2010; Astin & Astin, 2000).

By systematically reviewing existing literature and thematically analyzing key patterns, this study aims to contribute to the growing discourse on student leadership by offering a clear, evidence-based foundation for competency-driven leadership development. In doing so, it supports HEIs in designing programs and policies that cultivate not only capable student leaders, but also holistic, socially responsible graduates ready to contribute meaningfully to society.

### 1.1. Background of Study

Students in HEIs often face challenges in developing leadership competencies, particularly in communication, which significantly affects their ability to lead effectively. Many undergraduates also lack awareness of the broader range of skills necessary for both personal and professional growth. Although leadership development is a critical element in HEIs, efforts to systematically nurture student leadership remain limited (Somboonpakorn & Kantabutra, 2014). When done well, student leadership development fosters a sense of belonging, enhances engagement within the university environment, and prepares students to address complex societal and professional challenges (Abe, 2020).

Despite its importance, many institutions fail to prioritize leadership development, resulting in missed opportunities to equip students with essential skills for future success (Anuar et al., 2021; Krikunova et al., 2018). Similarly, the characteristics and competencies of effective academic leaders have not been deeply explored, even though leadership in HEIs plays a pivotal role in shaping institutional progress and student achievement. While leadership traits such as ethics, strategic vision, and inclusivity are undoubtedly important (Barnes, 2020; Danels et al., 2019; Ewing et al., 2009), this study narrows its focus to competencies that can be directly observed, developed, and measured in student leadership contexts.

Effective leadership has a measurable impact on student success, ethical behavior, and institutional performance. Ethical leadership, in particular, is essential for preventing misconduct and promoting a culture of integrity (Obuba, 2022). Beyond institutional outcomes, leadership development supports personal growth, identity formation, and the cultivation of responsible future professionals (Rocha, 2022). Students transitioning from academic to professional life increasingly encounter fast-paced, uncertain environments that require well-developed leadership competencies (Song et al., 2020; Rocha, 2022). Yet, many lack access to structured leadership training, which hinders their ability to navigate these challenges confidently and effectively.

Accordingly, this study focuses on the development of five key leadership competencies: communication skills, interpersonal skills, critical thinking and decision-making skills, ICT proficiency, and emotional intelligence. These competencies were not arbitrarily selected; they were identified through a systematic review of literature on student leadership development within HEIs. Across numerous educational frameworks and leadership models, these five competencies consistently appear as foundational for cultivating holistic and socially responsible student leaders who are prepared to lead in diverse academic, social, and professional contexts.

Grounded in theory and supported by empirical findings, this study seeks to contribute both conceptually and practically to the discourse on student leadership. By examining how these five competencies are developed and demonstrated, the research offers insights into how higher education institutions can better support student leadership as a vital component of academic and professional preparation.

To achieve this, it addresses the following research question:

RQ1. How does cultivating effective leadership among university students involve developing five key competencies: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence?

### 1.2 Research Objective

This paper examines the key aspects of student leadership that contribute to their effectiveness in higher education institutions (HEIs). The study emphasizes several key components of effective leadership for achieving shared success. These include developing the strategic mission and vision of an organization or group, embodying credibility and a positive image as a student leader, and serving as a role model for others. Effective leadership also enables student leaders to cultivate a positive organizational environment, guide members effectively, and foster a strong team culture. Key competencies such as leadership proficiency, effective communication, and a commitment to social responsibility are critical.

Effective leadership is a multifaceted concept that plays a vital role in the success of organizations such as clubs, associations, programs, and projects, particularly within educational contexts. It involves skills and characteristics that empower leaders to inspire, guide, and motivate group members toward achieving shared goals, objectives, missions, and visions. This study explores student leadership by analyzing various factors in developing and nurturing student leaders. Effective student leadership enhances a sense of belonging, promotes engagement, and encourages individuals to take active roles in their leadership journeys.

This purpose of this study is to explore and synthesize key competencies that define effective student leadership in HEIs. Specifically, it aims to identify and thematically analyze five key competencies: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence that are consistently cited in the leadership development literature as foundational to student success and holistic development. The study further examines how these competencies are developed, applied, and perceived by student leaders within HEIs to inform best practices for embedding leadership training into the student experience and enhancing students' roles as socially responsible contributors to institutional progress.

## 2. Effective Leadership in the Higher Education Institutions (HEIs) Context

Leadership in HEIs is a multifaceted concept that requires student leaders to exhibit not only authority but also adaptability, empathy, and clarity of vision. In the academic context, effective leadership is defined not solely by hierarchical control, but by the ability to influence

others, foster collaboration, and drive collective outcomes in student organizations, clubs, and peer-led initiatives.

According to Northouse (2016) and Zhelanova et al. (2019), effective leadership involves the ability to guide and inspire others through a shared vision, supported by integrity and commitment. Similarly, Hitt et al. (2011) emphasize that leadership becomes effective when it builds organizational capacity, enhances interpersonal dynamics, and fosters a culture of shared responsibility. These characteristics are particularly important in university settings, where leadership roles are often peer-based and highly dependent on communication, trust, and emotional maturity (Chatsama, 2024; Hao & Yazdanifard., 2015; Deng, 2022).

Several theoretical perspectives have been used to explain leadership effectiveness. The trait theory posits that leader possess innate qualities such as confidence, intelligence, and integrity (Kirkpatrick & Locke, 1991; Chai, 2015). However, this theory has been increasingly complemented by behavioral and contingency models, which argue that effective leadership is shaped through interaction, context, and adaptability (Yulk, 2010). In the HEIs context, these flexible approaches are especially relevant, as student leaders must adapt to dynamic peer groups, diverse challenges, and shifting institutional expectations (Lowell, 2014).

Leadership effectiveness among university students is also influenced by their ability to demonstrate responsibility, inspire peers, and sustain team performance through ethical and emotionally intelligent behavior (Sipahoiglu, 2024; Mitra, 2022; Mahdinezhad et al., 2018). According to Yulk (2013) and Spector (2016) underscore that effective leaders are capable of recognizing the strengths of their team members, fostering personal development, and creating an environment conducive to growth and innovation. These qualities reflect not just positional authority but also the ability to motivate, align, and empower others (Lee et al., 2023; Lubis et al., 2024; Verawati & Hartono, 2020).

Within the scope of this study, effective leadership is conceptualized as the outcome of five key competencies: communication, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. These dimensions, derived from the broader leadership literature, represent essential capabilities for student leaders navigating complex academic, social, and digital environments. By synthesizing these perspectives, this review highlights the multidimensional nature of leadership in HEIs and establishes a theoretical foundation for analyzing the competencies that underpin it.

## 3. Method

This study conducts a literature review of existing literature and empirical data to explore the approaches used by student leaders in five key competencies of effective leadership in developing conducive, effective, and efficient leadership skills. The study used Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to conduct a literature review aimed at addressing the research questions. Initially, a search string was developed to retrieve relevant materials from selected databases. Following that, the literature selection process was carried out systematically, with proper documentation and quality assessment conducted through the database.

The analysis was conducted to code and identify recurring patterns. Effective leadership themes were categorized under five competencies: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. The initial

phase was carried out to expand the keywords used during the search procedure. To reduce bias in the information gathering process, the use of multiple databases and keywords was critical (Durach et al., 2017).

### 3.1. Search Strategy and Database Selection

The literature search was conducted between July and December 2024, drawing on two major academic databases: Web of Science and Scopus. These databases were selected based on their global credibility and extensive indexing of peer-reviewed journals relevant to education, leadership, and social sciences. The selection of these databases was based on three key considerations, 1) their extensive coverage of literature related to effective leadership and higher education institutions; 2) the five key competencies examined in this study; and 3) their ability to provide maximum accessibility to full-text articles. Both platforms offer broad coverage of articles discussing leadership in the context of higher education and include indexed works from internationally recognized publishers. The search strategy began with the development of search strings that reflected both general leadership concepts and specific competencies related to student leadership. This structured search allowed for a focused yet comprehensive retrieval of relevant literature, which was crucial for ensuring the integrity and academic value of the review.

### 3.2. Keyword Used

The literature review plays a crucial role in this study by paying special attention to the identification and integration of relevant research findings. Since this study focuses on empowering leadership through five key competencies, various strategic search methods were employed, including utilizing search engines such as Scopus and Web of Science to ensure comprehensive coverage, keywords such as "effective leadership", “high-impact/ competent/successful/quality, high-performance”, "leadership behavior/ conduct/ actions/ pattern/ approach," "key aspects," “competencies/ skills/ abilities/ capabilities/ attributes”, and other relevant terms were used to obtain publications pertinent to the study. Additionally, the study refers to authoritative sources and recognized websites to strengthen the data collection process.

To explore best practices in leadership, additional keyword like ‘management’, ‘command’, ‘authority’, and ‘best practice’ were incorporated. In addition, the review was carried out by maintaining the outlined in this study: ‘communication’, ‘interpersonal’, ‘critical thinking’, ‘decision-making’, ‘ICT’ and ‘emotional intelligence’. Boolean operator ‘AND’ and ‘OR’ were strategically utilized to combine the keywords, enabling a more comprehensive retrieval of relevant studies from the selected databases.

The study is carried out in four distinct phases. 1) the first phase involves identifying research questions, identifying relevant studies, selecting studies, and mapping the data. 2) the second phase involves collecting and summarizing the selected previous research. 3) the third phase categorizes and analyzes the data using thematic analysis. 4) the final phase involves reporting the findings and producing scholarly writing.

The systematic search strategy begins with the identification, screening, and eligibility of the selected journals. The researcher conducts a comprehensive review, emphasizing only the criteria that have been previously established. Essentially, the inclusion and exclusion criteria

are predefined by the researcher to determine which studies or sources will be included or excluded from the initial journal review. The analysis is carried out to identify the five competencies of how to become an effective student leader in leadership behavior in Higher Education Institutions (HEIs). This literature search only includes full-text articles and is limited to articles in English. The study was conducted from July to December 2024. The keywords used in the search string were as follows:

**Table 1: Search Strings**

| Database | Searching | Searching Keyword |
|---|---|---|
| Web of Science | 1st | "effective leadership" AND "student" OR "university candidate" |
| | 2nd | "effective leadership" OR "high-impact" OR "competent" OR "successful" OR quality" OR "high-performance" AND 'leadership behavior" OR "conduct" OR "action" OR pattern" OR approach" |
| | 3rd | "thinking skill" AND "communication skill" AND "interpersonal skills" AND "ICT skill" AND "decision making" AND "emotional intelligent" AND "effective leadership" AND "student" AND "higher education" OR "tertiary school" OR "campus" |
| SCOPUS | 1st | "effective leadership" AND "student" OR "university candidate" |

### 3.3. Inclusion and Exclusion Criteria

To ensure both academic rigor and thematic relevance, a set of predefined inclusion and exclusion criteria was established. To refine the broad range of records obtained from the initial search, specific inclusion and exclusion criteria were employed to ensure that only literature directly aligned with the objectives of the study was selected. Firstly, to ensure the study's relevance to contemporary trends and practices, only literature published within the past decade (2014-2024) was included in the review. Secondly, only publications written in English were included to ensure linguistic consistency and broader accessibility for analysis. Thirdly, the selection was restricted to journal articles, conference proceedings, and book chapters, as these types of sources are generally peer-reviewed, critically examined, or editorially curated, thereby ensuring their credibility for scholarly analysis.

**Table 2: Criteria of Inclusion/ Exclusion for the Study**

| Criteria | For Inclusion | For Exclusion |
|---|---|---|
| Time period | 2014-2024 | <2013 |
| Language | English | Other than English |
| Type of literature | Journal articles, books, book chapters | Conference proceedings, review, conference review, editorial, retracted, thesis |

### 3.4. Screening Process

During the initial search phase, a total of 10,942 records were retrieved from Web of Science and 462 from Scopus, reflecting the breadth of their coverage. The screening and selection of literature followed a multiple-stage process to refine the records systematically. Initially, 11404 articles were retrieved from two databases – 10,942 from Web of Science and 462 from Scopus. After removing duplicates (8,669 articles), 2,582 articles remained for initial title and abstract screening. The screening process involved reviewing each article to determine its alignment with the study's objectives and inclusion criteria. From this process, 686 articles

were selected for full-text review. Following a more detailed evaluation, a final set of 68 articles was retained for qualitative synthesis. The selection process was documented and reported in accordance with the PRISMA framework. Each step—identification, screening, eligibility assessment, and final inclusion—was clearly defined to ensure transparency and replicability. The PRISMA flow diagram illustrating this selection process is presented in Figure 1 of this paper.

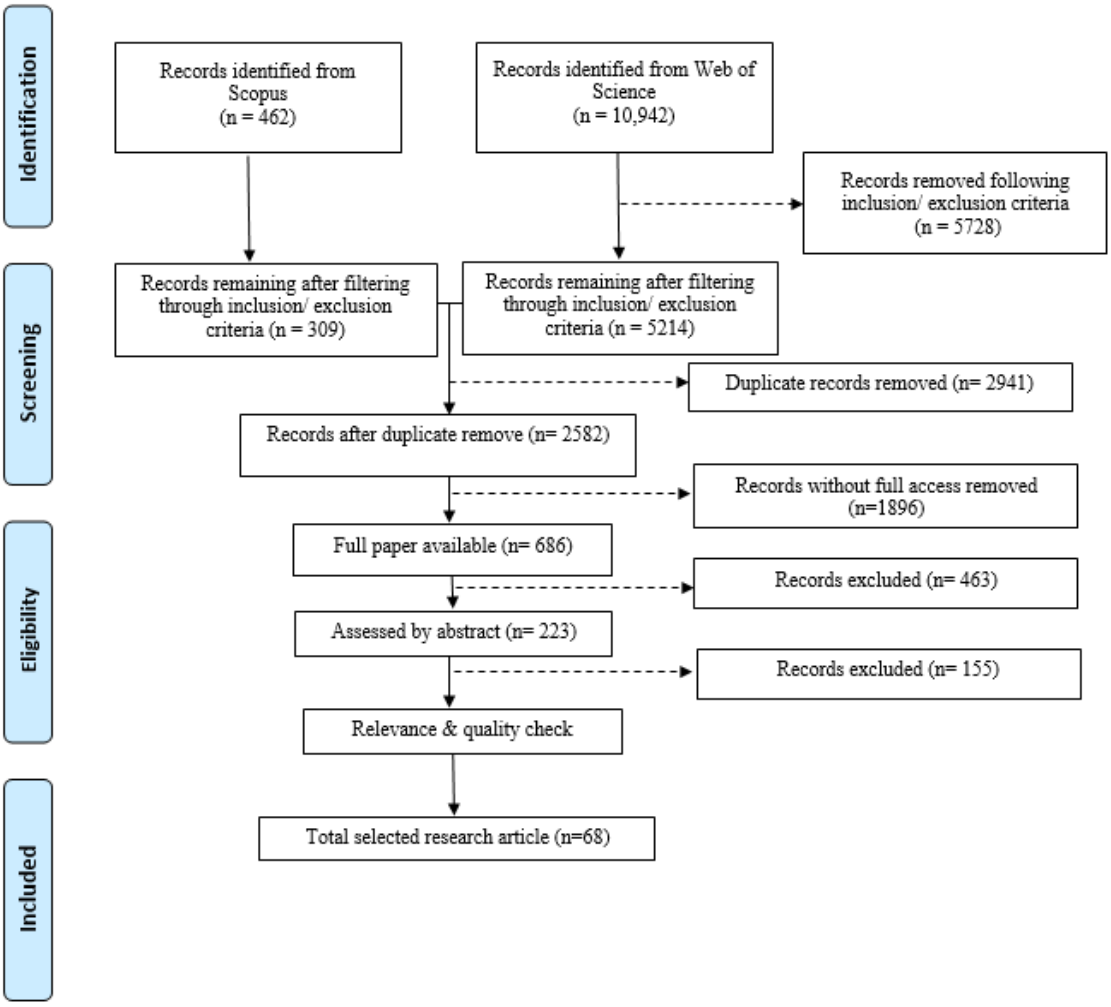


**Figure 1: Summary of Systematic Review**

### 3.5. Justification for Competency Selection

The decision to focus on five competencies: communication, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence was informed by both the frequency of these constructs in the literature and their alignment with widely accepted leadership models. Across the 68 selected studies, these five competencies were consistently identified as key enablers of student leadership, particularly in university-based leadership programs, student government, peer mentoring, and community engagement. The competencies also correspond closely with frameworks such as Transformational Leadership Theory (Bass & Riggio, 2006), Student Involvement Theory (Astin, 1993), and Goleman's Emotional Intelligence Model (1998). These models emphasize not only the importance of task-oriented leadership but also the human-centered aspects of leading others such as empathy, communication, and reflective decision-making. Therefore, these five competencies

were not arbitrarily selected but were evident across the majority of studies reviewed, affirming their relevance in the context of cultivating effective student leaders in higher education.

### 3.6. Thematic Analysis Procedure

To synthesize findings from the selected literature, a qualitative thematic analysis was employed using the six-phase process outlined by Braun and Clarke (2006). This method was chosen for its flexibility and effectiveness in identifying, analyzing, and reporting patterns across a qualitative data set. The analysis proceeded as follows:

#### 3.6.1 Familiarization with the Data

All 68 selected full-text articles were read in detail. Initial notes were taken on recurring ideas, leadership constructs, and competency-related terminology.

#### 3.6.2 Generating Initial Codes

Using a manual coding approach in Microsoft Excel, meaningful data segments related to leadership skills, behaviors, and developmental outcomes were assigned open codes. This stage used an inductive approach, meaning codes were derived from the data itself rather than from predefined categories.

#### 3.6.3 Searching for Themes

Similar codes were grouped into preliminary themes that aligned with recurring competencies. At this stage, we began to identify higher-order categories that corresponded to widely discussed student leadership skills.

#### 3.6.4 Reviewing Themes

Theme were reviewed and refined to ensure internal consistency and external distinction. Articles were re-cheched to validate that the emerging themes were strongly grounded in the literature and represented the overall data et.

#### 3.6.5 Defining and Naming Themes

Five major theme were finalized: communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence. Subthemes were also identified within each category (such as public speaking and feedback within communication skills; empathy and emotional regulation within emotional intelligence).

#### 3.6.6 Producing the Report

Each theme was synthesized with supporting literature examples, frequency counts, and conceptual explanation. Only data derived from the 68 included articles were used to construct the thematic findings presented in Sections 3.1–3.5.

To enhance reliability and trustworthiness, two reviewers cross-checked the coding scheme and thematic structure at each stage. Discrepancies were discussed until consensus was reached.

## 4. Results and Discussions

### 4.1. Summary of Studies According to Geographical Regions and Type of Sources Review

Based on the reviewed 68 articles, the geographical distribution of the studies broadly reflects a global scope, with a strong representation from Asia, followed by Africa, Europe, and the Middle East. These studies predominantly explored competencies such as communication skills, emotional intelligence, and ICT proficiency within higher education contexts. Malaysia alone contributed a significant portion, reflecting the country's growing emphasis on student leadership in tertiary education. Indonesia, India, China, Japan, and Kazakhstan were also represented, focusing on interpersonal leadership, decision-making, and digital integration. African contributions, especially from Nigeria and Egypt, emphasized ethical leadership, emotional self-regulation, and organizational impact. The Middle East, including Saudi Arabia, the United Arab Emirates, Jordan, and Lebanon, provided insight into digital leadership and institutional transformation. European studies, primarily from the United Kingdom and Russia, contributed theoretical perspectives rooted in transformational and trait-based leadership. Meanwhile, foundational literature from the United States continued to inform leadership development frameworks, despite fewer recent empirical studies from North America within the 2014–2024 scope. Oceania, inferred through broader theoretical citations, had limited but relevant contributions. This global distribution underscores the widespread relevance of student leadership competencies and the cross-cultural applicability of the five themes explored in this review. The summary of studies was as follows:

**Table 3: Summary of Reviewed Studies According to Geographical Regions**

| Region | Countries Represented | Estimated No. of Studies | Primary Focus Areas |
|---|---|---|---|
| Asia | Malaysia, Indonesia, China, India, Japan, Kazakhstan | ~35–40 | Student leadership development, communication, ICT proficiency, emotional intelligence |
| Africa | Nigeria, Egypt | ~8–10 | Ethical leadership, emotional regulation, organizational effectiveness |
| Middle East | Saudi Arabia, United Arab Emirates, Jordan, Lebanon | ~6–8 | Digital leadership, institutional change, inclusive student engagement |
| Europe | United Kingdom, Russia | ~5 | Transformational leadership, identity development, trait-based leadership models |
| North America | United States | ~3–5 | Foundational leadership theories, developmental models, civic engagement frameworks |
| Oceania | Australia, New Zealand *(inferred from theoretical references* | ~1–2 | Broad leadership frameworks, higher education contexts |

A total of 68 academic sources were systematically reviewed in this study. The majority of these, 58 articles or approximately 85%, 8 sources (12%) were academic books, and 2 sources (3%) were identified as book chapters. The summary of studies was as follows:

**Table 4: Summary of Reviewed Studies According to Types of Sources Reviewed**

| Type of Source | Number of Sources | Percentage (%) |
|---|---|---|
| Journal Articles | 58 | 85% |
| Books | 8 | 12% |
| Book Chapters | 2 | 3% |
| Total | 68 | 100% |

### 4.2. Communication Skills

Thematic analysis of the 68 selected studies revealed communication skills as a foundational competency for effective student leadership in higher education institutions (HEIs). This theme was prominent across 42 sources, where communication was not only associated with information exchange but also seen as a critical leadership mechanism for building trust, delivering a clear vision, and motivating team members. Communication in this context was identified as a multi-dimensional construct, encompassing verbal clarity, active listening, persuasive delivery, and nonverbal engagement.

Subthemes emerging from the analysis included message clarity, public speaking, and interpersonal feedback, which collectively influenced how student leaders managed their roles and interactions. According to Anuar et al. (2021), clear and effective communication enables student leaders to articulate ideas and instructions in a manner that is easily understood by team members, thereby strengthening collaboration and minimizing misinterpretation. Similarly, Grigoropoulos (2020) emphasized that effective communication involves not only speaking but also listening with empathy—key to earning trust and support from organizational members.

The reviewed literature also highlighted how communication skills support confidence building among student leaders. Claes (2024) noted that students who master public speaking techniques often exhibit higher levels of self-confidence and leadership presence, which enhances their ability to make informed decisions and respond to group needs with assurance. This is particularly important when addressing teams during challenging scenarios or when articulating a shared mission. In this regard, strong communication acts as both a cognitive and emotional tool, bridging the leader's intentions with followers' understanding.

Beyond transactional interaction, communication was also framed as a strategic leadership competency that promotes inclusivity, engagement, and alignment within student-led organizations. Leaders who demonstrate effective communication practices especially through active listening and feedback mechanisms were found to facilitate better team dynamics and improved task execution. This supports the notion that effective communication is not just a desirable trait but a critical enabler of leadership effectiveness in HEIs.

In conclusion, communication skills emerged as a dominant theme in the development of student leadership capacity. These findings reaffirm that leaders who communicate effectively are better equipped to inspire, guide, and empower others. They can project credibility, align their teams around common goals, and create an open environment that values participation. Thus, fostering communication competence should be a central priority in le

adership development programs for students in higher education settings (Anuar et al., 2021; Claes, 2024; Grigoropoulos, 2020).

### 4.3. Interpersonal Skills

The thematic analysis highlighted interpersonal skills as a crucial leadership competency, appearing in 39 of the reviewed studies. This theme encapsulated the ability to build and maintain effective relationships, demonstrate empathy, and facilitate collaboration among organizational members. Student leaders with strong interpersonal skills were portrayed as more capable of fostering cohesion, mutual respect, and trust within their teams, all of which were identified as key for effective leadership in higher education contexts.

Within this broader theme, several subthemes emerged most notably ethical behavior, flexibility and adaptability, and self-confidence. These traits were frequently cited as foundational for relationship-building and maintaining integrity in student leadership roles. Hakim and Samiyah (2024) emphasized the importance of ethical leadership behavior in promoting harmony within student organizations, while Anjum et al. (2023) and Siswanto et al. (2023) discussed the role of interpersonal ethics in establishing trust and credibility. The data also showed that student leaders who were perceived as empathetic and fair were more successful in resolving conflicts and inspiring loyalty among members.

Another recurring pattern in the literature was the connection between interpersonal skills and independent, autonomous leadership. Tam et al. (2020) argued that strong interpersonal competence enables student leaders to make confident decisions, manage team dynamics, and initiate innovation. Studies further indicated that student leaders often navigate complex, context-dependent scenarios requiring high levels of adaptability. In such situations, interpersonal flexibility was regarded as an asset that allowed leaders to modify their behavior according to team needs, cultural sensitivities, and organizational goals.

Moreover, the thematic data underscored that self-confidence and independent judgment are integral components of interpersonal competence. Leaders who exhibit these traits are better equipped to assume responsibility, motivate others, and lead with clarity and conviction. Westaby et al. (2010) supported this finding, linking behavioral confidence to improved decision-making and leadership initiative.

In sum, interpersonal skills were not only seen as social or emotional assets but as functional leadership tools. They empower student leaders to manage group dynamics, encourage collaboration, and uphold ethical standards. These findings reinforce the notion that interpersonal skills are indispensable in higher education leadership development, as they shape how student leaders influence, engage, and support their peers in achieving common goals.

### 4.4. Critical Thinking and Decision-Making Skills

Thematic analysis of the reviewed literature identified critical thinking and decision-making as a key competency in effective student leadership, prominently featured in 45 of the 68 analyzed studies. This theme centered on the ability of student leaders to evaluate information, make strategic choices, and respond to complex problems within dynamic organizational contexts. The review consistently highlighted that these cognitive skills are essential not only for effective leadership execution but also for empowering student leaders to act with autonomy and foresight.

Subthemes such as problem-solving frameworks, logical and reflective reasoning, and judgment under pressure were frequently coded in the literature. Studies such as those by Dhiman (2023) and Jerab & Mabrouk (2023) emphasized that strong decision-making involves understanding systems complexity, considering uncertainties, and evaluating alternatives. These studies reinforce the notion that leadership in higher education environments is rarely linear, often requiring leaders to analyze variables quickly and with limited information.

One commonly referenced framework across sources involved a multi-phase decision-making process: problem identification, criteria development, option analysis, implementation, and evaluation. This model was supported by Onyekwere et al. (2023) and Radu (2023), who found that structured thinking practices promote critical thinking development among student leaders. Critical reflection emerged as a tool to enhance both performance and self-efficacy. Leaders who actively reviewed their decisions were more likely to grow from experience, improving future outcomes.

Several sources emphasized the integration of emotional and social intelligence into decision-making. Shahin and Phiri (2021) and Amalia et al. (2020) discussed how decision-making processes are not solely rational but are influenced by contextual and emotional factors such as time pressure, social dynamics, and team sensitivity. These insights were further supported by Xiaowei (2022), who proposed that effective leadership decisions rely on understanding inference structures and managing judgment errors. Black (2015) and Bryman (2007) added that cognitive flexibility and emotional regulation enhance strategic decision-making and team cohesion.

Moreover, the ability to balance structure with creativity was highlighted as a valuable leadership trait. While structured decision-making fosters transparency and consistency, overly rigid systems can stifle innovation and adaptability. Strategic thinking must allow room for creativity, especially when navigating uncertainty in student organizations (Altbach, 2011; Cansoy, 2017).

The data also showed that reflective practice and metacognitive awareness are increasingly critical. Student leaders who regularly reflect on their decisions; questioning their own assumptions, methods, and outcomes were found to be more resilient and responsive to change (Hakim & Samiyah, 2024; Anyanugo et al., 2024). These findings support the growing integration of metacognitive training in leadership development programs across HEIs.

In conclusion, critical thinking and decision-making emerged as strategic competencies that underpin student leadership effectiveness. Far from being isolated skills, they interact with emotional intelligence, communication, and situational awareness. Developing these competencies equips student leaders to make informed, ethical, and adaptive decisions that contribute to both individual and organizational growth.

### 4.5. ICT Proficiency

Thematic analysis of the reviewed literature identified ICT proficiency as a distinct and evolving competency key for effective student leadership in the context of digital transformation. This theme emerged in 29 of the analyzed studies, where digital literacy, technology-enabled collaboration, and data-informed decision-making were frequently discussed as enablers of leadership performance in higher education environments.

A prominent subtheme within this category was the ability of student leaders to strategically apply digital tools to enhance organizational management, communication, and academic engagement. Dong and Tabajen (2024) emphasized how university student leaders who develop strong ICT capabilities demonstrate improved learning effectiveness and organizational coordination. Similarly, Thekedam (2014) described how the integration of ICT into leadership practices promotes innovation and improves institutional performance. These findings suggest that technological fluency is no longer optional but fundamental to modern student leadership roles.

Another subtheme was the role of ICT in promoting digital leadership and adaptability. Onan (2024) and Aditya et al. (2021) noted that student leaders must be equipped with the ability to manage digital complexity, particularly as universities increasingly adopt AI-driven tools and hybrid learning models. The reviewed studies emphasized that digital leadership includes understanding online platforms, ensuring ethical technology use, and leveraging digital channels to promote collaboration and engagement. These competencies not only support organizational efficiency but also foster inclusive leadership by reaching diverse student populations.

The theme of data-driven decision-making also emerged as a vital extension of ICT proficiency. Studies such as Brunner et al. (2023) and Alenezi (2021, 2023) highlighted the importance of digital tools in helping student leaders personalize experiences, monitor team dynamics, and evaluate outcomes based on evidence. Anwar and Saraih (2024) further argued that digital environments demand leaders who can synthesize data insights to guide strategic initiatives and cultivate knowledge-sharing cultures within student communities.

Moreover, the analysis revealed that training and institutional support play a critical role in shaping ICT competencies among student leaders. Carvalho et al. (2022) found that structured programs in digital leadership improved academic outcomes and student engagement by over 15%. Such programs not only build technical skills but also reinforce ethical awareness, digital responsibility, and collaborative learning. These elements collectively define ICT as both a technical and relational leadership competency.

In conclusion, ICT proficiency were thematically identified as a key component of student leadership development in higher education. As student leaders navigate increasingly digitized academic environments, their ability to effectively integrate digital tools, manage information, and promote virtual collaboration becomes a key determinant of leadership success. These findings underscore the growing importance of digital literacy and leadership readiness in preparing students for dynamic and technologically advanced educational landscapes.

### 4.6. Emotional Intelligence (EI)

Thematic analysis of the selected literature highlighted emotional intelligence (EI) as one of the most consistently emphasized leadership competencies in higher education contexts. Found in 51 of the 68 reviewed studies, EI emerged as a cross-cutting theme that not only supported interpersonal relationships but also influenced decision-making, stress management, team collaboration, and leadership adaptability (Barling et al., 2010; Zaghamero, 2024). This competency was frequently viewed as a foundation for sustainable and ethical student leadership in both formal and informal roles within HEIs.

Subthemes identified in the analysis included self-awareness, emotional regulation, social awareness, and relationship management. According to Anyanugo et al. (2024) and Nair (2024), emotionally intelligent student leaders were better equipped to manage interpersonal conflicts, motivate team members, and cultivate inclusive environments. These leaders also demonstrated stronger resilience under pressure, maintaining focus and clarity in emotionally charged situations a trait particularly valuable in student-led organizations where conflict and uncertainty are common.

The ability to assess and manage one's own emotions was central to leadership effectiveness. Jihan et al. (2024) reported that self-assessment of emotions significantly influences students' decision-making, helping them to better understand their strengths and areas for development. Similarly, Kumari (2024) and Siswanto et al. (2023) argued that emotional awareness enhances clarity, improves communication, and fosters moral responsibility among student leaders—traits essential for organizational trust and group cohesion.

Emotional regulation was another dominant subtheme. Leaders who could maintain calm under stress were more successful at maintaining group morale and reducing interpersonal friction, which in turn boosted team performance. Paschal et al. (2024) and Kiishi (2024) showed that EI supports constructive leadership under pressure, allowing students to respond thoughtfully rather than react impulsively. This aligns with earlier findings by Brackett et al. (2011) and Carmeli (2003), which emphasize the role of emotional control in professional and academic leadership contexts.

EI also contributed to building strong interpersonal bonds and inclusive leadership. Leaders with high emotional intelligence were consistently described as more empathetic, collaborative, and aware of group dynamics. According to Humphrey (2013) and Wong and Law (2002), such leaders create psychologically safe environments, where team members feel heard and valued thereby improving overall group engagement and leadership legitimacy.

In conclusion, emotional intelligence is not merely an interpersonal advantage but a strategic leadership asset that enhances individual and collective functioning. Through its core components, emotional self-regulation, awareness, empathy, and relationship-building, EI empowers student leaders to lead authentically, adapt effectively, and navigate challenges with both wisdom and compassion. For HEIs aiming to develop holistic student leaders, emotional intelligence training should be a prioritized component in leadership development efforts (Anyanugo et al., 2024; Nair, 2024; Jihan et al., 2024; Kumari, 2024; Siswanto et al., 2023; Paschal et al., 2024; Kiishi, 2024; Brackett et al., 2011; Carmeli, 2003; Humphrey, 2013; Wong & Law, 2002).

## 5. Practical Implications

The findings of this study hold meaningful implications for higher education institutions (HEIs) seeking to foster effective student leadership through competency-based development. Based on the five key leadership competencies identified, communication skills, interpersonal skills, critical thinking and decision-making, ICT skills, and emotional intelligence, universities should take intentional steps to integrate these dimensions into co-curricular programs, student governance, and leadership training initiatives.

First, the consistent presence of communication and interpersonal skills across the literature suggests that universities should embed structured opportunities for students to practice collaborative dialogue, conflict resolution, and public speaking. These can be incorporated into student government training, leadership workshops, and peer mentoring initiatives, enabling student leaders to interact with confidence and build stronger relationships within their teams.

Second, the theme of critical thinking and decision-making highlights the need for leadership programs that go beyond surface-level involvement. Institutions should provide student leaders with real-world decision-making experiences such as managing budgets, leading campus projects, or participating in policy consultations to help them develop analytical skills, evaluate alternatives, and lead ethically under pressure.

Third, the increasing relevance of ICT skills in student leadership underscores the importance of equipping students with digital tools and platforms for collaboration, communication, and organizational management. Universities should not only offer technical training but also model digital leadership in student activities encouraging the use of platforms that promote innovation, inclusivity, and remote engagement.

Fourth, the emergence of emotional intelligence as a unifying leadership theme suggests a need for emotional literacy training, particularly for student leaders managing diverse, high-pressure, or emotionally sensitive situations. HEIs should promote awareness and reflection on self-regulation, empathy, and social responsibility possibly through leadership retreats, coaching, or reflective assignments linked to their leadership roles.

Finally, the overall findings support the idea that student leadership development should be holistic, focusing not only on administrative duties but on shaping ethical, reflective, and socially responsible individuals. Universities are encouraged to align their leadership programs with developmental goals that include cognitive, emotional, interpersonal, and technological growth. By doing so, HEIs can produce graduates who are not only capable of leading student organizations effectively, but who also carry forward these competencies into their professional and civic lives.

## 6. Conclusions

This study sought to explore how five key competencies, communication skills, interpersonal skills, critical thinking and decision-making, ICT proficiency, and emotional intelligence contribute to the development of effective student leadership in higher education institutions. Through a systematic review and thematic analysis of 68 scholarly sources, the study revealed that these competencies are consistently identified as essential dimensions of leadership effectiveness in the student context. Each competency plays a distinct yet interrelated role. Communication and interpersonal skills support collaboration, influence, and team cohesion. Critical thinking and decision-making enable student leaders to evaluate complex situations and guide their teams with clarity and confidence. ICT proficiency allows leaders to adapt to digital platforms and foster innovation in virtual engagement. Emotional intelligence acts as a unifying competency, influencing how leaders build trust, regulate emotions, and respond with empathy in high-pressure environments.

These findings affirm that effective student leadership is not merely about taking charge. It is about engaging others, solving problems, navigating uncertainty, and growing both personally and socially. The study also confirms that these competencies are not innate but can be nurtured through intentional educational experiences. Therefore, universities have a critical role to play in designing leadership programs that develop these competencies holistically ensuring that graduates are not only capable leaders in campus settings, but also equipped to lead responsibly in their professional and civic lives. While this study was grounded in secondary literature, its contribution lies in organizing and synthesizing leadership competencies in a way that is practical, accessible, and directly applicable to higher education leadership development. Future research may consider expanding on these findings through empirical validation across diverse cultural and institutional contexts, or through longitudinal studies tracking competency development over time.

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# EXPLORING THE RELATIONSHIP BETWEEN PARTICIPATION, NEEDS, READINESS, AND PLANNING IN UNIVERSITY STUDENT VOLUNTEERING PROGRAMS

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## ABSTRACT

Volunteering programs in higher education play a pivotal role in fostering student development, civic responsibility, and meaningful community engagement. This quantitative study explores the relationships between participation, needs, readiness, and program planning in the context of university student volunteering programs. The research involved 48 students from Universiti Kebangsaan Malaysia (UKM) who participated in structured volunteering initiatives. Data were collected through purposive sampling using a validated questionnaire and analyzed using both descriptive statistics (frequency, percentage, mean) and inferential analysis (Pearson correlation). The results revealed strong and significant positive relationships between participation, needs, readiness, and program planning, suggesting that these factors are interconnected and critical for the effective implementation of student volunteering programs. These findings provide valuable insights for higher education institutions in designing improved volunteer initiatives that foster student engagement and preparedness, with future studies in Malaysia offering opportunities to explore the long-term effects of these interconnected factors.

**Keywords:** student volunteers, participation, program planning, readiness, needs, higher education

## 1. Introduction

Volunteering programs in higher education are vital platforms for fostering civic engagement, leadership skills, and personal development among students. Globally, volunteerism has evolved into a structured and strategic approach, often supported by public or private institutions, to address societal needs and encourage active citizenship (Hannibal & Robertson, 2023; Owen & Chambers, 2022). Volunteers are key stakeholders who contribute their time, skills, and resources to meaningful causes, ranging from disaster relief to community development. Over time, volunteering has shifted from informal goodwill to professionally managed initiatives that demand clear objectives, long-term engagement, and structured planning (Koutrou et al., 2016).

International research has highlighted the transformative impact of volunteerism on both individual volunteers and the communities they serve. Studies have shown that volunteer activities foster trust, knowledge-sharing, and mutual learning among stakeholders (Schech, 2022; Impey & Overton, 2014). In this context, volunteers are not merely service providers but active participants in collective, knowledge-driven efforts that support sustainable development.

Volunteer programs are integral to collective efforts in advancing community and societal activities (Magrizos et al., 2021). Within these programs, various approaches- such as skill development, orientation, and attitudinal training- are employed to create solutions and support local communities. These efforts align with the goals of enhancing volunteers' knowledge and experiences. Volunteer programs also offer participants opportunities to learn from diverse experiences in a relatively low-pressure environment, aiming to deliver positive impacts for all stakeholders (Sparrow et al., 2020). Therefore, this study posits that within the broader volunteering context, volunteers contribute to the shared goals of assisting communities in need by leveraging skills, knowledge, and selfless service to meet program objectives.

Volunteer programs inherently shape participants' experiences, which vary based on the primary goals of the program. Experiences derived from service-oriented volunteer activities are considered a critical component of a volunteer's development (Ballard et al., 2015; Hustinx et al., 2015). Research on volunteering frequently examines themes such as collaboration, program objectives, activities, assistance, and community contributions. Previous studies have focused on ideal partnerships, principles of volunteer assistance, goals, objectives, and other related topics. The overarching aim of volunteering is often to create a better world through the knowledge, perspectives, and roles of individuals. Recognizing this, volunteer engagement has gained importance in contemporary discourse. Hauser-Oppelmayer and Korac (2024) argue that the impact of volunteer experiences is a core value essential to alleviating the burdens faced by communities and stakeholders.

In Malaysia, the role of student volunteers continues to gain momentum. With over 20 million registered volunteers nationwide (Gage & Thapa, 2012), higher education institutions increasingly recognize the potential of structured volunteer programs to nurture leadership, empathy, and collaborative competencies among students. These programs also align with national priorities to cultivate responsible, community-oriented graduates (Rabun et al., 2017).

In line with Malaysia's commitment to the United Nations 2023 Agenda, student volunteerism contributes directly to Sustainable Development Goal 4 (SDG 4): Quality Education-

particularly Target 4.7, which emphasizes education for sustainable development, global citizenship, and community engagement. This aligns closely with the Malaysian Education Blueprint (Higher Education) 2015–2025, which calls for holistic, entrepreneurial, and balanced graduates through experiential learning and civic participation. Initiatives such as Yayasan Sukarelawan Siswa (YSS) have further institutionalized student volunteerism as a national strategy to cultivate leadership, empathy, and global-mindedness. These structured volunteering programs allow Malaysian students to develop critical soft skills, build social responsibility, and contribute meaningfully to community development. Strengthening such programs is therefore central to Malaysia's higher education transformation agenda.

Although student volunteerism has gained increasing attention in higher education, empirical research remains limited regarding the critical components that shape effective program implementation particularly in non-Western or developing country contexts. Volunteerism in higher education has become an integral part of student development, complementing academic learning with civic engagement and social responsibility. Student participation in structured volunteer programs is shaped not only by motivations such as altruism, skill-building, and career preparation but also by how relevant and supportive the program feels (Clary & Snyder, 1999; Hauser-Oppelmayer & Korac, 2024). Engagement is deeper when students perceive that their needs are met and they feel ready—both mentally and practically—to contribute meaningfully (Adel et al., 2021; Magrizos et al., 2021).

These dynamics underscore the importance of program structures that respond to student needs while fostering sustained participations. The effectiveness of volunteer programs depends on their ability to balance student motivation with well-planned, supportive structures. Clear roles, training, and ongoing guidance help sustain participation, while readiness—rooted in confidence, prior experience, and alignment with personal values—enhances commitment and performance (Curran & Taheri, 2021; Hustinx et al., 2015). In this context, thoughtful program planning becomes essential, serving as the foundation for aligning institutional goals with student engagement and community impact (Schech et al., 2016).

Given the limited studies exploring how student participation, needs, readiness, and program planning intersect in Malaysian university contexts, this study aims to investigate how these factors interact, fuelling optimal student engagement in volunteer programs. By examining these relationships, the study seeks to provide insights for designing more effective, student-centered volunteer initiatives in higher education. These initiatives can enhance both student development and societal impact, ensuring that volunteer experiences are meaningful for students and beneficial for the communities they serve.

### 1.1. Problem of statement and research aims

Volunteers are the core component of volunteer programs, managing, funding, and implementing various activities such as disaster relief and emergency response. These programs have increasingly become professional and goal-oriented, with growing long-term membership and alignment with program objectives. However, challenges persist in ensuring the effectiveness of volunteer participation, knowledge sharing, preparedness, and achieving objectives consistent with program goals (Owen & Chambers, 2022; Curran & Taheri, 2021).

While previous research has explored the general outcomes of volunteering activities (Meher & Meher, 2024; Siqueira et al., 2022), there remains a lack of focused empirical studies examining the internal dynamics of volunteer program implementation—particularly how

participation, perceived needs, readiness, and planning interact to shape student engagement. This gap is especially relevant in Malaysian higher education institutions, where volunteer programs are increasingly used as tools for student development, yet often lack systematic evaluation. A better understanding of these interrelationships is needed to inform the design of more effective, student-centered volunteer initiatives.

Therefore, the primary aim of this study is to explore the relationships between participation and the independent variables—needs, readiness, and program planning—in the context of student volunteering programs at a Malaysian university. The findings aim to offer practical insights for improving program structure, engagement strategies, and alignment with educational goals—particularly in support of Malaysia's higher education objectives and Sustainable Development Goal 4.7, which emphasizes education for sustainable development and global citizenship. To achieve this, the following research objectives are set:

i. to identify the relationship between university student participation and needs in a structured volunteering program
ii. to identify the relationship between university student participation and readiness in a structured volunteering program
iii. to identify the relationship between university student participation and program planning in a structured volunteering program
**iv.** to identify the relationships between the independent variables—needs, readiness, and program planning—among university students in a structured volunteering program

## 2. Literature Review

### 2.1. Student Participation in Volunteering

Student participation in volunteering programs is shaped by a range of internal and external motivators, including altruism, skill development, social connection, and career aspirations (Clary & Snyder, 1999; Hustinx, 2005). Participation is defined as the degree of student engagement and involvement in structured volunteering activities (Ballard et al., 2015). Active participation is associated with greater awareness of societal needs, improved self-confidence, and stronger identification with community values (Kim & Morgul, 2017). In the context of university programs, participation also reflects students' willingness to take on responsibilities, engage with peers, and align their efforts with the goals of the volunteering initiative (Hauser-Oppelmayer & Korac, 2024). Participation has been found to be positively associated with the success of volunteer programs, especially when students perceive their roles as meaningful and well-organized (Cho et al., 2020).

### 2.2. Perceived Needs in Volunteering

Understanding and addressing students' perceived needs is essential for designing effective volunteer programs. These needs may include logistical support, role clarity, leadership guidance, and appropriate task assignments (Gage & Thapa, 2012). When students feel that their personal, emotional, or skill-based needs are met, they are more likely to remain engaged and contribute meaningfully (Magrizos et al., 2021). Needs also encompass the availability of pre-training, access to resources, and mentoring throughout the program. The lack of need-aligned structures may reduce volunteer retention and satisfaction (Hustinx et al., 2015). In Malaysia, the incorporation of structured support and contextualized programming has been emphasized in national volunteering initiatives such as those under Yayasan Sukarelawan

Siswa (YSS), reinforcing the importance of student-centered program design (Rabun et al., 2017).

### 2.3. Readiness for Volunteering Engagement

Readiness refers to a student's psychological and practical preparedness to participate in volunteer work. It includes prior experience, motivation, confidence, and the availability of time and emotional capacity (Adel et al., 2021). High levels of readiness are typically associated with successful engagement, sustained effort, and positive volunteer experiences (Sparrow et al., 2020). Students who are mentally prepared and informed about what is expected of them are more likely to contribute effectively. Curran & Taheri (2021) emphasize that readiness also relates to whether students view the program as aligned with their goals and values. In Malaysian higher education, where volunteerism is increasingly integrated into holistic education models, ensuring students' readiness is key to maximizing the impact of such programs.

### 2.4. Program Planning in Volunteer Initiatives

Planning is the backbone of any successful volunteer initiative. Effective program planning involves setting clear objectives, organizing activities, managing time and resources, and ensuring alignment with both institutional goals and community needs (Willems et al., 2020). Planning also incorporates feedback loops, role assignments, contingency management, and the integration of training and reflection phases (Schech et al., 2016). Poorly planned programs can result in confusion, low participation, and dissatisfaction among student volunteers (Bang et al., 2020). In contrast, well-structured programs foster a sense of ownership, improve communication among volunteers, and enhance program outcomes. In the Malaysian context, university-administered volunteer initiatives increasingly prioritize program planning as a key driver of both participation and program impact (Hussin & Arshad, 2012; Gage & Thapa, 2012).

### 2.5. Conceptual Framework Development

The constructs of participation, needs, readiness, and program planning are widely acknowledged in literature as core pillars of effective volunteer management and student engagement (Siqueira et al., 2022; Garma & Niepes, 2022). These variables were selected based on their recurring presence in studies related to student volunteering behavior, program success factors, and institutional frameworks. While previous models have examined these elements individually, this study integrates them to explore their interconnected roles in a structured Malaysian university program. This integrated approach provides a clearer understanding of how these constructs collectively influence program implementation, thus filling an existing gap in localized volunteerism research.

Building on this relationship, this study is conceptually guided by three theoretical underpinnings—Theory of Planned Behavior (TPB), Self-Determination Theory (SDT), and Experiential Learning Theory (ELT)—to support the integration of participation, needs, readiness, and program planning in university-based volunteering programs. TPB (Ajzen, 1991) provides a behavioral lens, suggesting that participation is influenced by students' attitudes, perceived norms, and perceived control, which in this study align with the constructs of readiness, needs, and the clarity of program planning. SDT (Deci & Ryan, 1985) reinforces the importance of meeting students' psychological needs—autonomy, competence, and

relatedness—which are captured within the study's focus on readiness and support aspects, enhancing intrinsic motivation among the students to volunteer. ELT (Kolb, 1984), meanwhile, situates participation as part of a continuous learning cycle, where planning and readiness are essential preparatory stages that enable meaningful and effective engagement. Together, these theories provide a comprehensive foundation for understanding how these interrelated constructs—participation, needs, readiness, and program planning—contribute to effective and sustained student involvement in structured volunteering efforts.

Grounded in this framework, the correlation analysis was conducted to validate the theoretical assumptions and measure the extent to which each construct influenced participation. Figure 1 presents the conceptual framework showing the relationship between participation, needs, readiness, and program planning in student volunteering programs. Through this study, the relationship between independent variables—needs, readiness, planning—and the dependent variable—participation—was explored using the correlation test to determine both the significance and the direction of the relationships.

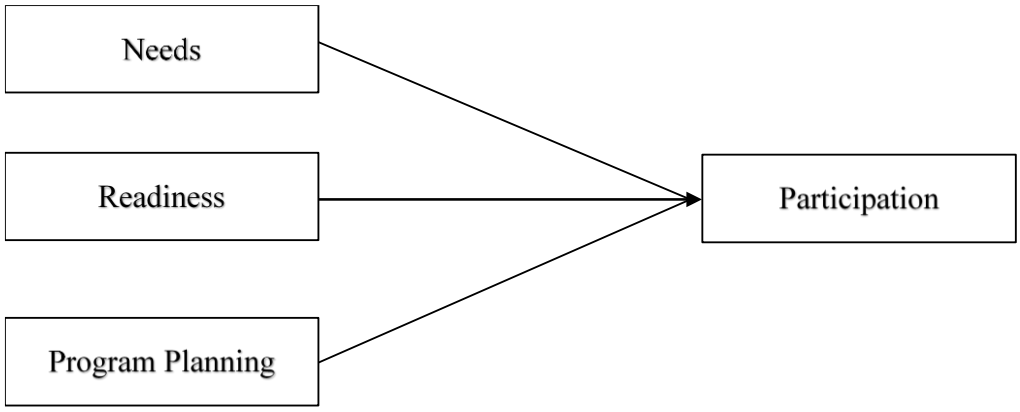


**Figure 1: Conceptual Framework Linking Participation, Needs, Readiness, and Program Planning in a Structured Student Volunteering Program**

## 3. Method

### 3.1. Research design

This study employs a quantitative, non-experimental correlational research design to explore the relationships among four key variables: participation, needs, readiness, and program planning in the context of university student volunteering programs. This design is appropriate when the goal is to examine the strength and direction of naturally occurring relationships between variables, rather than to establish causality or manipulate conditions (Creswell & Creswell, 2018). In this study, the descriptive component was used to summarize respondent demographics and determine the levels of each construct. At the same time, the correlational analysis focused on identifying statistically significant associations among the four variables. This design aligns with the study's aim to provide insight into program development and engagement strategies without the need for intervention or control groups.

The non-experimental nature of the research was further justified by the ethical and practical constraints of modifying existing university programs, reinforcing the use of a passive observational approach.

### 3.2. Participants and Sampling

A sample is a smaller subset of a larger population chosen to accurately reflect the characteristics of the overall population. The researcher obtains data from a representative sample because it is not feasible to study the entire population. The study focused on students involved in a university-administered community volunteering program at Universiti Kebangsaan Malaysia (UKM). A purposive sampling was used to deliberately select participants who had direct involvement and responsibilities in the program. This method is justified by the study's intention to obtain insights from students who were actively engaged in planning, leading, or implementing volunteer activities. Initially, 65 students were identified as potential participants based on their program involvement. After applying the inclusion criteria, only 48 students were eligible and consented to participate in the study.

The selection process was conducted in two phases:

i. Initial screening by the program executive council based on participants' involvement level;
ii. Confirmation interviews to verify eligibility and commitment.

The final sample consisted of 48 undergraduate students who fulfilled the following inclusion criteria:

a) Enrolled as active students at UKM;
b) Held formal roles in the volunteering program (e.g., team leaders, planners, facilitators);
c) Had previous volunteering experience at community, state, or national level;
d) Participated in the full program cycle (from preparation to execution).

While the sample size may be limited in scope, it represents a focused, information-rich group suitable for exploratory correlation analysis in a specific institutional context (Maxwell, 2013).

### 3.3. Research Instrument, Pilot Test, and Data Collection Tools

A self-administered structured questionnaire was developed and adapted from existing instruments and literatures. It was bilingual (Malay and English) and structured into five sections. The instrument was tailored to align with the Malaysian higher education context based on expert validation and related literatures (Palermo & Thomson, 2018; Curran & Taheri, 2021). Program implementation was assessed using a 5-point Likert scale based on Palermo and Thomson (2018). Cronbach's alpha was used to assess internal consistency.

Constructs were evaluated from four constructs, such as participation, needs, readiness, and overall program planning. The measurement reliability index was 0.95. A reliability coefficient nearing 1.0 denotes enhanced perceived reliability, indicating superior internal accuracy (Suresh & Chandrashekara, 2012). Based on the results of the pilot study conducted before the actual research (N = 30), it was found that the pre-implementation constructs and implications were reliable. Each item was evaluated on a 5-point Likert scale: (1) strongly disagree, (2) disagree, (3) somewhat agree, (4) agree, and (5) strongly agree.

The questionnaire consisted of 56 items, organized into five section as follows:

- Section A: Demographic profile (gender, age, year of study, academic performance)
- Section B: Participation – 7 items (role responsibility, attendance, frequency)
- Section C: Needs – 10 items (clarity of roles, support from leaders, resources)

- Section D: Readiness – 10 items (mental preparedness, prior knowledge, time commitment)
- Section E: Program Planning – 5 items (schedule, coordination, communication, contingency planning)

The instrument underwent content validation by two senior lecturers in educational leadership and community engagement. It consisted of four sections with a total of 56 questions covering demographic components, program implementation, and the implications of the volunteering program.

The pilot study conducted on 30 students was not included in the final sample with similar volunteering experience. The implementation of the volunteering program was divided into four construct: volunteer participation, volunteer needs, volunteer readiness, and planning during the program. Reliability was used to indicate stability and internal consistency by measuring the Cronbach's alpha value. A value above 0.60 is typically used to measure and confirm the reliability of an instrument, while instruments with a value below 0.60 are considered to have low reliability in assessing the construct being tested. Based on the validity and reliability analysis, the Cronbach's alpha values indicated high reliability, ranging from 0.84 to 0.94. All implementation items showed high interpretation regarding the implementation prior to the volunteering program. The 'needs' construct showed the highest mean score at 4.34 among the student volunteers, followed by 'participation' construct at 4.30. 'Readiness' and 'program planning' showed mean scores of 4.20 and 4.18, respectively. The result of the internal consistency reliability using **Cronbach's alpha** is presented in Table 1.

**Table 1: Pilot Study Reliability and Validity**

| Constructs | Cronbach's Alpha | Mean | Standard division |
|---|---|---|---|
| Participation | 0.844 | 4.30 | 3.57 |
| Needs | 0.900 | 4.34 | 5.39 |
| Readiness | 0.943 | 4.20 | 4.20 |
| Program planning | 0.861 | 4.18 | 3.29 |

### 3.4. Data Collection Procedures

Data collection was conducted in April 2024, during two weeks before the official closure of the program. The research team distributed printed questionnaires to participants during scheduled briefing sessions. Participation was voluntary and anonymous. Students were briefed on the objectives and allowed to ask questions before filling out the form. Completed questionnaires were collected immediately upon completion to ensure data integrity and high response rate.

To reduce response bias, no faculty member or program supervisor was involved during data collection. Additionally, students were assured that their answers would not affect their academic or program evaluations.

### 3.5. Data Analysis

The study used IBM SPSS version 26 software in the process of analyzing the results to ensure accuracy and reliability. The variables were measured using validated and reliable scales, adapted from related studies and confirmed through the instrument validation process (Krishnan & Sitaraman, 2013). The analysis was conducted at two levels:

i. Descriptive statistics were used to profile respondents and determine overall response patterns. Frequency, percentage, mean, and standard deviation were reported for all variables.
ii. Inferential statistics involved Pearson correlation analysis to examine the strength and direction of the relationships between participation, needs, readiness, and program planning. Pearson's correlation is appropriate when both variables are continuous and normally distributed (Field, 2013). The significance level was set at $p < 0.05$, and results were interpreted using standard effect size thresholds.

### 3.6 Ethical Considerations

This study adhered to the ethical guidelines of UKM. Participants provided informed written consent and were assured that: i) their participation was entirely voluntary; ii) all responses would be kept confidential and used solely for academic purposes; iii) their identity would remain anonymous; iv) they could withdraw at any stage without penalty.

## 4. Results

### 4.1 Student Demographics

The demographic analysis describes the characteristics of the 48 student volunteers from UKM who participated in this study, as shown in Table 2. Among the respondents, 68.8% were female (n=33) and 31.3% male (n=25). The majority of participants were between the ages of 21-22 years (47.9%), followed by those aged 19-20 (37.5%), and 23-24 years (14.6%).

Ethnically, the sample was predominantly Malay (95.8%), with a small representation of Indian students (4.2%). All participants were currently enrolled in a Bachelor's degree program, with most in their first year (75%), followed by second-year (18.8%) and third-year (6.3%) students. In terms of academic performance, the majority of the student volunteers had a Cumulative Grade Point Average (CGPA) between 3.1 and 3.5 (47.9%), followed by 35.4% with a CGPA above 3.6, and 16.7% between 2.5 and 3.0. Overall, the sample primarily comprised junior undergraduates—predominantly Malay female students—with moderate to high academic standing.

**Table 2: Respondent Demographics**

| Category | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 15 | 31.3 |
| Woman | 33 | 68.8 |
| **Age** | | |
| 19 – 20 | 18 | 37.5 |
| 21 – 22 | 23 | 47.9 |
| 23 – 24 | 7 | 14.6 |
| **Ethnicity** | | |
| Malay | 46 | 95.8 |
| Indian | 2 | 4.2 |
| **Year of study** | | |
| Year 1 | 36 | 75.0 |
| Year 2 | 9 | 18.8 |
| Year 3 | 3 | 6.3 |

| | | |
|---|---|---|
| **Cumulative Grade Point Average (CGPA)** | | |
| > 3.6 | 17 | 35.4 |
| 3.1 – 3.5 | 23 | 47.9 |
| 2.5 -3.0 | 8 | 16.7 |

### 4.2 Descriptive Analysis of Participation, Needs, Readiness, and Program Planning

This section presents the descriptive findings for each of the four constructs: participation, needs, readiness, and program planning. Respondents' scores were categorized into three levels—high (3.68- 5.00), moderate (2.34 – 3.67), and low (100 – 2.33)—based on the mean ranges derived from a 5-point Likert scale.

As shown in Table 3, the majority of student rated their experiences and perceptions within the high category across all constructs. High ratings were recorded for participation (n = 19, 81.3%), needs (n = 42, 87.5%), readiness (n = 36, 75.0%), and program planning (n = 36, 75.0%). The remaining student volunteers reported moderate levels of participation, needs, readiness and program planning. Notably, none of the constructs fell within the low category, suggesting an overall positive perception of participation and program structure among the respondents.

**Table 3: Categories of Volunteer Participation, Needs, Readiness, and Program Planning**

| Constructs | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| Participation | High | 39 | 81.3 |
| | Moderate | 9 | 18.8 |
| Needs | High | 42 | 87.5 |
| | Moderate | 6 | 12.5 |
| Readiness | High | 36 | 75.0 |
| | Moderate | 12 | 25.0 |
| Program planning | High | 36 | 75.0 |
| | Moderate | 12 | 25.0 |

Mean scores were analyzed to identify item-level patterns across the four constructs. Table 4 summarizes the mean ranges for each construct based on its respective items. Overall, the findings indicate that students reported high levels of participation, needs, readiness, and orogram planning.

**Table 4: Mean Levels of Volunteer Participation, Needs, Readiness, and Program Planning**

| Constructs | Mean Value | | Interpretation |
|---|---|---|---|
| | Lowest | Highest | |
| Participation | 3.71 | 4.52 | High |
| Needs | 4.10 | 4.48 | High |
| Readiness | 4.00 | 4.40 | High |
| Program planning | 3.90 | 4.38 | High |

The participation construct was measured using seven items. these items recorded high mean scores ranging from 4.17 to 4.52, reflecting strong student involvement in the volunteering program. Two items pertaining to peer recognition and holding leadership roles had slightly

lower means (3.96 and 3.71, respectively), though still within the high category. For the needs construct, all ten items were rated in the high category, with mean scores ranging between 4.10 and 4.48. The highest mean was for clear instructions from program leaders, followed by the need for relevant knowledge and management skills.

Readiness construct also showed high mean scores across all ten items, ranging between 4.00 and 4.40. The item with the highest mean indicated that students were ready to receive instructions from leaders at any time, reflecting their adaptability and openness to guidance. For the last construct, program planning, five items were analysed. Among these items, four had high mean scores between 4.00 and 4.38. In contrast, one item, related to participation in additional team activities, had a slightly lower mean of 3.90, yet continued to reflect a high level. Overall, these findings suggest strong student involvement and positive perceptions of university volunteering programs.

### 4.2 Relationship between Participation, Needs, Readiness, and Program Planning

Guiding on the research objectives, the Pearson correlation analysis indicated that all variables have a significant relationship with the university student participation in volunteering programs, thus rejecting the null hypothesis. Strong correlations were also reported between all variables.

The analysis revealed significant positive relationships between student participation and the independent variables (Table 5). Needs demonstrated a strong positive correlation with participation ($r = 0.769$, $p < 0.01$), while readiness ($r = 0.820$, $p < 0.01$) and program planning ($r = 0.806$, $p < 0.01$) both exhibited very strong positive correlations. These findings suggest that students who were more actively engaged in volunteer activities also demonstrated higher levels of preparedness and psychological readiness. Additionally, students who perceived that their needs were adequately addressed were more likely to report greater participation and alignment with program planning efforts. This supports the interconnected nature of the four constructs—participation, needs, readiness, and program planning—as outlined in the research framework. It also reinforces the appropriateness of examining these variables relationally, rather than through a cause-and-effect lens, consistent with the correlational design of the study.

**Table 5: Pearson Correlation Coefficients Between Participation, Needs, Readiness, and Program Planning (N = 48)**

| Independent Variable | r | Direction | Strength | Significance |
|---|---|---|---|---|
| Needs | .769** | Positive | Strong | Significant |
| Readiness | .820** | Positive | Very strong | Significant |
| Program planning | .806** | Positive | Very strong | Significant |

Note: Values represent Pearson's r correlation between Participation and each independent variable; **significant at $p < .01$ (2-tailed)

Additional correlational analyses were conducted between the independent variables—readiness, needs, and program planning. As shown in Table 6, all relationships were significant and strongly positive: needs and readiness ($r = 0.835$, $p < 0.01$), needs and program

planning (r = 0.815, p < 0.01), and readiness and program planning (r = 0.889, p < 0.01).

**Table 6: Pearson Correlation Coefficients Among Independent Variables—Needs, Readiness, and Program Planning (N = 48)**

| Variable | 1 | 2 | 3 |
|---|---|---|---|
| 1. Needs | - | | |
| 2. Readiness | .835** | - | |
| 3. Program planning | .815** | .889** | - |

Note: **significant at p < .01 (2-tailed); *r*= correlation coefficient

The strong correlation between needs and readiness suggests that students exhibit greater psychological readiness to engage in volunteer activities when their individual needs are adequately supported. Likewise, the strong relationship between program planning and readiness indicates that students feel more confident and prepared when volunteering programs are well-structured and clearly communicated. The significant association between needs and planning also supports the idea that perceived program responsiveness enhances both student preparedness and participation. These results reinforce the multidirectional relationships proposed in the conceptual framework.

## 5. Discussion

The relationship between components of volunteering programs, or in the case of this study, the factors associated with university student participation in volunteering programs, needs, readiness, and program planning, encompasses various critical dimensions for effective volunteer management. Volunteering programs thrive on active participation, which is significantly influenced by effective management strategies. According to Siqueira et al. (2022), volunteering programs can attract participation and retain volunteers more effectively, ensuring a more committed workforce. Volunteers require specific support to function effectively, including training and resources, especially in high-risk environments such as disaster relief (Adel et al., 2021). By addressing volunteer needs, student readiness is enhanced, leading to better outcomes in service delivery. Therefore, effective planning can adequately address challenges, needs, and rejections and ensure that volunteering programs align with organizational goals (Garma & Niepes, 2022). A structured approach to designing volunteer programs can facilitate the management and integration of volunteers into relief initiatives. Therefore, balancing structure and flexibility is essential to ensure continuous volunteer engagement.

The findings confirm the interconnected nature of these constructs, as proposed in the conceptual framework, and are consistent with prior research on effective volunteer program design (Curran & Taheri, 2021; Gage & Thapa, 2012). The strong correlation between participation and readiness suggests that students who are more actively involved in volunteer roles tend to be better prepared, both mentally and logistically, for engagement. This is consistent with the Theory of Planned Behavior (Ajzen, 1991), which posits that perceived behavioral control and readiness influence actual participation. Emphasizing this, Kim and Morgul (2017) also report that increased involvement builds confidence and ownership, aligning with Self-Determination Theory's emphasis on competence and autonomy as key drivers of motivation. Similarly, Gage and Thapa (2012) affirm that well-structured programs

aligned with student needs enhance motivation and participation. These findings reflect principles of Experiential Learning Theory (Kolb, 1984), which suggests that meaningful learning and engagement occur through active involvement and reflective experience. Collectively, the results underscore the importance of designing student-centered programs that cultivate readiness, address individual needs, and provide structured opportunities for deeper engagement.

In parallel, the significant relationship between the independent variables provide valuable insights. The correlations between needs and readiness highlights the importance of addressing volunteer expectations and support structures. When students' logistical and emotional needs are met, they are more likely to approach programs with enthusiasm and clarity. Notably, program planning also strongly correlated with both needs and readiness, underscoring the pivotal role of well-structured program delivery in fostering successful student engagement. This is consistent with Schech et al. (2016) and Bang et al.'s (2020) findings, as they identified planning as a core driver of volunteer retention and satisfaction. Ultimately, this aligns with the Malaysian context, where institutions such as Yayasan Sukarelawan Siswa (YSS) emphasize planning, reflection, and feedback as part of national volunteerism strategy (Rabun et al., 2017).

Overall, the study successfully meets all research objectives, validating the relationships between participation and the independent variables—needs, readiness, and program planning—while also affirming the multidirectional connections among these constructs. This emphasizes that successful student volunteering depends not on a single factor, but on a well-integrated system involving participation, preparedness, responsive support, and clear planning. The theoretical perspectives supporting these findings further underscore the importance of a comprehensive approach to developing transformative volunteering programs. By highlighting these interconnected elements, the study contributes to the literature with an empirically tested model set within the Malaysian higher education context—an area where such integrative research has been limited.

## 6. Conclusion

This study emphasize that successful student volunteer participation is driven by the cohesive integration of program planning, readiness, and support for individual needs, rather than relying on a single aspect. Students are more likely to engage meaningfully when they feel prepared, supported, and involved in decision-making processes. From a practical standpoint, this study provides guidance for universities to enhance the design and implementation of student volunteer programs by focusing on feedback mechanisms, student leadership roles, and needs-responsive planning. Such strategies not only strengthen engagement but also support broader institutional goals in producing holistic and civic-minded graduates. Finally, this research supports Sustainable Development Goal 4, Target 4.7, by demonstrating how structured volunteerism contributes to quality education, civic responsibility, and values-based student development within higher education.

These findings also emphasize the value of creating authentic, real-world learning environments through well-managed volunteering experiences. Students benefit not only in terms of skill development and civic engagement but also through enhanced motivation and deeper social awareness. Program coordinators and higher education institutions must therefore ensure that volunteer programs are both structured and adaptable, allowing students to contribute, reflect, and grow within safe and supportive settings.

Ultimately, this study highlights that thoughtful volunteer program design—grounded in participation, needs-responsiveness, and readiness—can produce positive educational outcomes and contribute to broader societal impact. As universities continue to explore experiential learning opportunities, structured volunteering stands out as a practical, scalable tool to enhance both student development and community engagement.

## 7. Limitations of the Study and Recommendations for Future Research

This study has several limitations. First, it involved a purposive sample of 48 students from a single Malaysian university, which may restrict the generalizability of the findings to other institutions or broader student populations. Second, its cross-sectional design captured data at a single point in time, limiting insights into how participation, needs, and readiness may evolve across different stages of volunteering. Third, reliance on self-reported quantitative data may overlook the nuanced, subjective experiences that shape students' motivations and perceptions.

Future research should consider a larger, multi-institutional sample to improve representativeness, adopt longitudinal designs to observe developmental trends, and incorporate qualitative approaches—such as interviews or reflective journals—to gain deeper insights into student experiences and the dynamic nature of engagement.

Additionally, while this study revealed strong associations among the independent variables—needs, readiness, and program planning—it did not extend its analysis to examine these relationships in greater depth. This presents a limitation in fully capturing the dynamics among these constructs, despite their statistical significance. Future studies could adopt mediation or path analysis to uncover how these elements interact and contribute to the broader understanding of student engagement.

**Co-Author Contribution**
All authors confirm that there are no conflicts of interest related to this study. Zurina Ahmad Saidi conducted the field study, data entry, and analysis, reviewed the literature, and wrote the overall manuscript. Alia Sarah Asri assisted with the statistical analysis, interpreted the results, and contributed to writing the methodology, finding and discussions section. Mohd Faiq Abd Aziz supervised the entire research process, provided suggestions for improvement, and approved the final version of the article.

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# FACTORS INFLUENCING FEMALE LECTURERS' WELL-BEING IN HIGHER EDUCATION: A COMPREHENSIVE REVIEW

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## ABSTRACT

This paper aims to comprehensively review and analyses the antecedents of well-being among female lecturers in higher education institutions. The issue of declining well-being among female academics, exacerbated by work-family conflicts, work-related stressors, lack of empowerment, insufficient institutional support, and gender inequalities has become a significant concern within the academic community. A comprehensive review of literatures from the past five years using relevant keywords from two major databases, Scopus and Google Scholar, identified determinants such as personal factors (e.g. work-family balance and occupational stress), social factors (e.g. empowerment opportunities) and environmental factors (institutional support and gender issues in the workplace). The results were synthesized from 31 papers after inclusion and exclusion process, highlighting the importance of specific interventions, such as improved institutional support, gender equality, empowerment, reduced occupational pressure, and work-life balance initiatives, aimed at enhancing female lecturers' well-being. The findings suggest that addressing these factors not only improves individual job satisfaction and psychological health but also positively impacts educational outcomes, making it imperative for higher education institutions to prioritize well-being initiatives for female faculty members.

**Keywords:** higher education, female academics, institutional support, occupational stress, work-family balance, well-being

## 1. Introduction

The job stress level in higher educational institutions (HEIs) is noticeably on the rise in recent years (Akanji et al., 2022; Bashir & Khan, 2022; Kusi et al., 2018; Shadrack & Pillay, 2023; Wen et al., 2024). Furthermore, within HEIs, there is more emphasis on competitiveness concerning research, teaching, and social services, which is associated with lecturers' stress, depressive symptoms, emotional exhaustion, and high turnover rates. In conjunction with the mounting demands placed on HEIs, the health and wellbeing of academic staff, and particularly female lecturers, has emerged as a contentious topic (Akanji et al., 2022; Bashir & Khan, 2022; Kusi et al., 2018; Shadrack & Pillay, 2023; Wen et al., 2024).

The fierce competition for teaching resources in HEIs is increasingly requiring lecturers to go beyond their teaching and academic service obligations. This integrated demand is difficult psychologically and emotionally for many lecturers, particularly women, who grapple with the complex matrix of gendered discrimination alongside slow professional opportunities and familial caregiving responsibilities. With the outbreak of the COVID-19 pandemic, the problems have escalated, fundamentally challenging how business operations and responsibilities are managed. A significant number of lecturers are now required to transition to remote teaching accompanied by increased caregiving responsibilities (Anda & Tay, 2024). Research has shown that female academics suffer greater levels of depression and anxiety during the pandemic, demonstrating a greater need for balance between professional and personal life (Akanji et al., 2022; Oliveira et al., 2021).

In this light, the administration of academic institutions has better recognized the necessity of caring for and supporting faculty members. Studies have reported that reasonable accommodations within the work environment, including mental healthcare, along with greater flexibility, significantly enhanced the wellbeing of lecturers and educators (Coats et al., 2023). Most importantly, for female lecturers, higher social support along with enhanced professional opportunities greatly improves job satisfaction and mental well-being (Cik et al., 2024).

The intersection of professional and domestic realms impacts women faculty in higher education differently. Wen et al. (2024) note the impossible balancing act of motherhood and work responsibilities that female faculty members have to manage. Many women tend to resolve the issue differently, relishing being both mothers and educators but bound by family commitments more than work obligations while being at peace with their decisions. This dual identity, exhausting as it may be, indicates that women are customarily expected to encompass both realms simultaneously.

The nature of these challenges differs across contexts. Bashir and Khan (2022) highlight the focus on multiple role stresses of women academics in Pakistan who engage in teaching, research, administration, and domestic work. Besides countless academic chores like managing a timetable, admissions, and departmental activities, these women face additional expectations to assume traditional feminine roles as caretakers and homemakers, which includes childrearing, cooking, and cleaning. In the same way, Shadrack and Pillay (2023) examine Black female academics who contend with imbalance between professional and personal lives due to unaddressed patriarchal and cultural norms alongside professional ones such as workload, underappreciation, and lack of regard from male peers. These findings illustrate the different but related challenges encountered by women educators around the world.

It is notable that women's responsibilities as both teachers and mothers can further their professional advancement. Wen et al. (2024) point out that STEM educators, for example,

often maternalize their roles and practice teaching in caring and nurturing ways. As a result of qualitative research conducted in China and Italy, educators reported that their student-centered teaching was profoundly enhanced by their experience as mothers and enabled them to consider different ways in which students learn and the pace at which they learn. This sociological imagination about the teaching profession implies that parenting in conjunction with academic life can positively conflict in a sense that over time it can enhance the professional identity and teaching practices of a person.

Similarly, balance and productivity in such challenging roles is supported by sociophobic and institutional policies, as well as managing stress effectively. Cik et al. (2024) highlight the importance of personal attributes in stress management and balance productivity, noting that lecturers remained productive amid the high demands of academia. Equally important is the social support from colleagues, which helps build a positive and supportive culture at work. Other policies within the institution, such as welfare policies, training in stress management, and in other areas, increase educators' coping abilities with academic demands. These policies do not only assist in managing workloads but also help work-life conflict, which for women educators protects and enhances their professional and personal development. When higher education institutions implement recommended policies, they demonstrate a proactive approach to healthy lecturer well-being alongside promoting academic achievement alongside academic rigor in the focus of educator welfare program in the institution.

Consequently, universities and colleges ought to consider the concerns of female lecturers and take adequate steps to better their working conditions as this will aid in improving the quality of education offered and the retention of faculty and staff, which is fundamental to the growth of higher education. Women working as lecturers in higher education institutions demonstrates their actual contribution which, regrettably, comes with obstacles that undercut their efforts.

Through this comprehensive literature review, this study aims to highlight the various factors that influence their well-being, shedding light on areas that need attention to support female lecturers in their roles.

## 2. Literature Review

### 2.1 Unique Challenges Faced by Women in Academia

According to previous studies, many articles highlight the unique challenges faced by women in academia. The Teacher Well-being Index (Education Support, 2019), which is primarily aimed at general teachers but contains information relevant to female lecturers, shows that high stress levels are common among educators, with 72% of respondents admitting to being stressed. From the research, it can be seen that excessive workload, lack of support and a poor work-life balance generally undermine a person's well-being, and the situation is even worse for women, who perform multiple tasks both at work and at home.

Recent studies published between 2019 and 2024 have examined a range of issues during this period, highlighting various factors influencing the well-being of female lecturers. Farradinna et al. (2019) conducted a study on factors affecting the well-being of female lecturers, focusing on the areas of self-esteem, specifically job satisfaction and perceived emotional support in the academic environment. They noted that female lecturers have been shown to have higher teaching loads and personal situational emotional and care responsibilities than male lecturers, and therefore they experience higher levels of stress.

In the COVID-19 pandemic period, these issues are more obvious. Istiningtyas (2021) explains that mental health status in a sample of female lecturers. Although it looms more on the impact of the pandemic, it also shows some of the difficulties that working female lecturers encounter in managing work and family life. Besides, various studies have been conducted to understand the stressors of female lecturers, and Eggley et al. (2021) conducted a categorized examination of specific stressors. These included issues related to work stressors, institutional demands, and lack of support, which are the main causes of occupational stress. In the study, it was recognized that there were problems that required organizational changes to improve the working environment and conditions of female faculty.

A qualitative study by Johnson et al. (2023) described the stress experience of female faculty members in higher education institutions and its impact on well-being. Nursyamsi et al. (2024) conducted a bibliometric analysis to identify research trends and found that a growing number of studies indicate that female lecturers undertake dual roles and responsibilities in both professional and personal spheres. Overall, this extensive literature review suggests that despite the widespread attention given to female lecturers at the university level, they are still underrepresented in leadership positions, which undermines their job satisfaction and psychological well-being. In the work of Iloakasia (2024), a comprehensive description of the experiences of women who work as lecturers in universities and have children is provided. The study suggests that such conflicting demands of the two roles increase stress and affect their professional performance.

### 2.2 Factors Affecting Well-being of Female Lecturers

Most related research focuses on the influencing factors of female lecturers' well-being, which are generally varied and complex. Akram (2020) explored the correlation between job satisfaction and mental health of female lecturers and called for more attention to institutional efforts aimed at improving the emotional well-being of female workers. The study also found that female lecturers benefited from an environment that promoted shared decision-making in teams and provided resources to handle the workload, meaning that job satisfaction equated to well-being and happiness for female lecturers. In the study conducted in 2021 on work-life balance and task performance among female lecturers, Umeh et al. noted how these women's ability to self-manage affects their well-being.

Umeh et al. (2021) highlighted that work-family interface significantly correlates with both occupational and general well-being among female lecturers. Besides, Handayani et al. (2023) pointed that work-family balance significantly contributes to the happiness at work for female lecturers and both work-family balance and quality of life enhance happiness, which is mediated by factors such as job satisfaction, work engagement, and self-confidence. However, Yudiani and Istiningtyas (2022) have different findings. They sought to establish a correlation between the dependent variable mental health and the independent variable work-life balance of female lecturers. The study participants were 225 female lecturers from Palembang, Indonesia, of whom 54 responded to a self-administered questionnaire. A small percentage (8.1%) was attributed to work-life balance and its relationship with mental health. This means that while the ability to balance work and family demands helps, other areas have an even greater impact on mental health.

In a study by Handayani et al. (2023) that focused on the well-being of female lecturers, it was found that female academics who served longer were happier and healthier, as evidenced by high job satisfaction levels. They concluded in their study that personal factors, including marital status, influenced the emotional state of these lecturers, with married female lecturers

showing higher levels of well-being than unmarried female lecturers. This means that female faculty and other female employees need to be encouraged to receive emotional and psychological support at home and in the workplace. Besides, some studies refer to the relationship between financial issues and female lecturers' well-being. Arumsari (2023) believed that improving financial personality traits and financial literacy among female lecturers ultimately contributes to their overall well-being. However, Tam et al. (2021) pointed that higher income may impact psychological health negatively.

### 2.3 Critical Analysis of the Literature and Research Framework

After years of research, it was found that female lecturers face many issues in terms of well-being. Factors that affect their well-being include work-family balance, resilience, occupational stress, interpersonal relationships, empowerment, institutional support, gender inequality, etc. These factors are categorized into three main domain—personal, social and environmental—to aid in structured analysis (Figure 1).

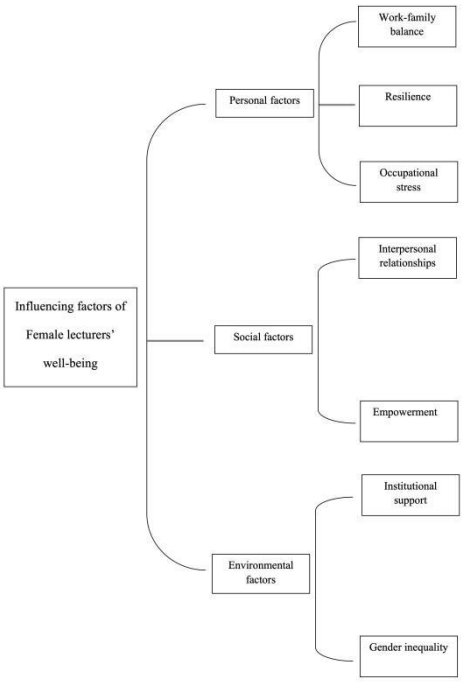


**Figure 1: Summary of Influencing Factors Categorized into Personal, Social, and Environmental Domains**

While the existing literature provides valuable insights into the challenges faced by female lecturers and factors affecting their well-being, several critical observations can be made:

i. Methodological limitations: Many studies rely on self-reported data and small sample sizes, which may limit the generalizability of findings. Future research should consider employing more diverse and robust methodological approaches, including longitudinal studies and mixed-methods designs.

ii. Contextual variations: A majority of studies appear to concentrate on a particular area or region which may lead them to miss differences in culture, society, and even economics within different academic frameworks. More studies are needed that incorporate different countries and educational systems that can highlight the gaps in

understanding the issues.

iii. Long-term impacts: The majority of studies seem to focus on direct or immediate impacts on the well-being of an individual. There should be more investigation into the life pathways and long-term health aspects of women holding lecturer positions to evaluate the sustained consequences of their challenges.

## 3. Statement of Problem and Research Aims

Women lecturers in higher education suffer from challenges that are particular to their status, and this affects their well-being in several crucial ways. While some studies have attempted to address parts of these problems, there remains a lack of comprehensive systematically integrates the existing literature and findings on the key determinants of female lecturers' well-being in higher education. This study seeks to fill this gap by conducting a systematic review to examine the literature, identify key findings, and offer useful explanations for developing informed policies aimed at improving the well-being of women lecturers in higher education. These measures are not only essential for improving individual well-being but also for ensuring equitable access to career advancement and sustaining high-quality academic output in higher education institutions.

Rather than adopting a narrow approach focused on isolated variables, this study employs a mixed inductive–deductive methodology. By systematically identifying and analyzing empirical studies that explicitly address the well-being of female lecturers in higher education, it compiles and categorizes the diverse factors examined in the literature into a cohesive framework based on thematic similarities. Thus, this review study represents one of the most comprehensive attempts to date that seeks to synthesize and analyze the available scholarly literature on the well-being of female lecturers in higher education, taking into account their gender role and socio-cultural context. Drawing from the reviewed literature, the identified factors are organized into three overarching categories: personal factors (work-family integration and friction, resilience and stress), social factors (social support and empowerment), and environmental factors (institutional support and gender considerations in the workplace). The significance of this study lies in its potential to guide researchers in identifying the factors that most effectively explain the well-being of female lecturers and in offering insights on how to enhance their well-being, as reported in previous studies. Our goal is to provide actionable recommendations to higher education institutions, aiming to raise awareness and improve employment support for female lecturers. This includes proposing comprehensive measures to improve job satisfaction and psychological contract within academic environments. Such measures may include flexible working arrangements, access to quality childcare facilities, clear promotion pathways, mentorship programs, and the integration of mental health and stress management resources tailored to the unique needs of women in academia. Addressing these issues is crucial for meeting current and future educational challenges while maintaining the competitiveness and sustainability of HEIs. With this in mind, the objectives of this review study are as follows:

i. To evaluate the current literature and summarize factors influencing female lecturers' well-being.

ii. To systematically identify and analyze the key factors influencing female lecturers' well-being in higher education settings.

**iii.** To provide evidence-based recommendations for higher education institutions to improve the well-being of female lecturers in higher education settings.

# 4. Research Methodology

## 4.1 Research Design and Studies Selection

This review critically examines relevant original and peer-reviewed studies to establish the factors affecting female lecturers' well-being. The primary database for the literature review was Scopus and was supplemented with Google Scholar utilizing the indexing keywords "well-being", "university", and "female lecturer". Scopus was selected as a primary reputable database as it hosts over thirty-six thousand journals and eleven thousand six hundred seventy-eight publishers, and encompasses documents in the form of book series, academic journals, and conference proceedings. Alternatively, Google Scholar is a non-subscription-based search engine that is open to the public and indexes full text and information regardless of publishing format and subject area. Google Scholar has more than three hundred eighteen million items from diverse sources such as academic papers, books, journals, technical reports, and many others. The search was guided with the following search strings (Table 1). Based on prior research, the keywords "female lecturer", "female academics", "female scholars", and "women academics" tend to describe the study's target population. The terms "higher education" and "university" and "college" serve to describe the target organization of the study. Therefore, the derived keywords of search strings are created.

The criteria regarding the selection of studies were based on the publication window and the keyword relevance. Only studies within the scope of 2019 and 2024 were considered while older articles were excluded. Once the studies were identified, a thematic analysis was conducted to extract and categorize factors influencing female lecturers' well-being into overarching themes that formed the basis of the study's analytical framework.

**Table 1: Search Strings**

| Database | Indexing Terms |
|---|---|
| Scopus | (TITLE-ABS-KEY (Education) ) AND (Well-being) AND (Higher education institutions) OR (University) OR (College) AND (Female Lecturer) OR (Female Scholars) OR (Female Academics) AND (LIMIT-TO (LIMIT-TO (PUBYEAR, 2024) OR LIMIT-TO (PUBYEAR, 2023) OR LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) AND ( LIMIT-TO (LANGUAGE, "English")) |
| Google Scholar | Female Lecturer, Female Academics, Female Scholars, Women Academics, Well-being, Higher education, University, College |

Out of the initial set of 656 articles collected using indexing terms on Scopus and Google Scholar, 518 were eligible for further screening. Exclusion criteria were made where 138 articles did not pertain to higher education. To maintain a coherence of themes, the selected studies have to incorporate the following major keywords: well-being, female lecturers or female academics, or female scholars or women academics. Articles that failed to capture all the two categories were excluded to maintain the theme of this study. The process of keyword screening was done in two stages leading to 452 articles excluded and 66 remained for more in-depth analysis. Relevant articles were included after a final screening regarding specific reference to educational institutions – universities or colleges or higher educational institutions and female lecturer or female academics or female scholars or women academics. The final articles excluded 35 to leave 31 for comprehensive review as shown in Figure 2.

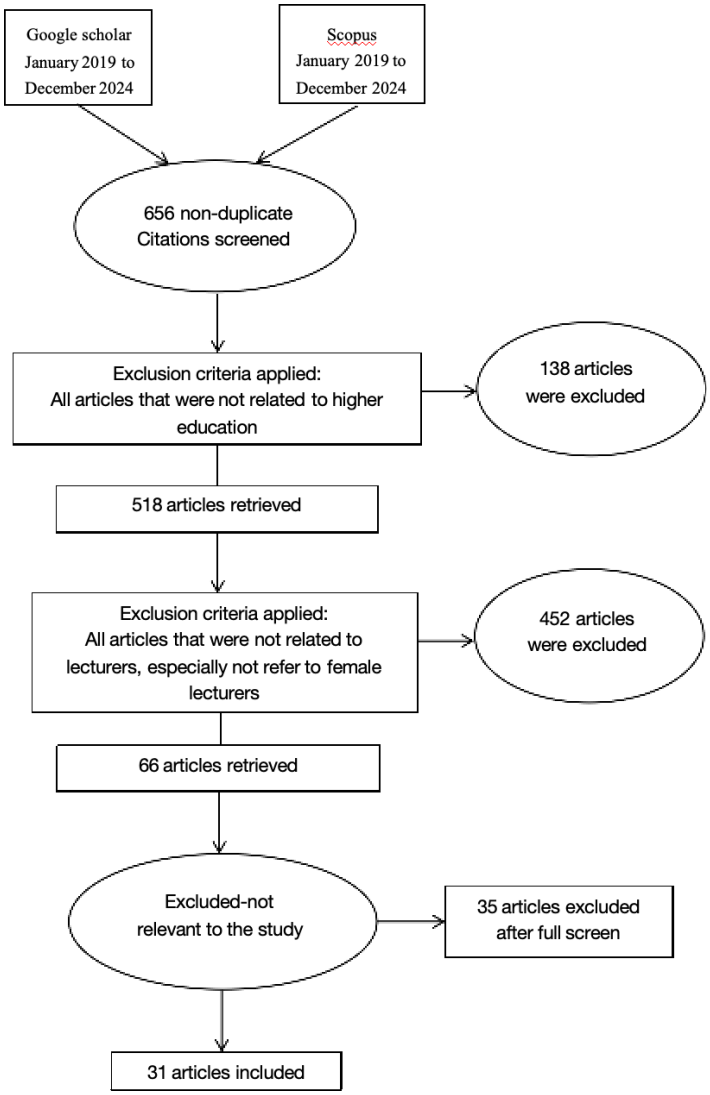


**Figure 2: Literature Identification and Selection Procedure**

## 4.2 Data Synthesis and Analysis Process

The synthesis and analysis of data was conducted in a way that maintained methodological rigor and reproducibility. For the last 31 articles, we applied a multi-stage analysis procedure:

### 4.2.1 Data Extraction

Two reviewers working independently collected data with reference to a pre-defined template which included information about the study such as: author, year, country of research, research design, participants (sample size, demographic information), methodology including methods of data collection and analysis, and the major findings concerning the female lecturers' well-being. Divergent views on the data extracted were settled at a meeting with a third reviewer.

### 4.2.2 Quality Assessment

Each included study was given a qualitative grade of high, moderate, or low based on the assessed methodological quality and rigor, adequacy of the sampling and analysis done. None of the studies were dropped due to quality assessment but there are some quality issues which were taken into consideration during the synthesis process.

### 4.2.3 Thematic Analysis

We undertook thematic analyses guided by Braun and Clarke's six-phase paradigm:

i. Documenting familiarization with data through reading and rereading it several times
ii. 'Pre-coding' relevant segments of the data within each dataset.
iii. Looking for these themes by assembling codes into designated possible themes.
iv. Defining possibilities of themes in terms of internal homogeneity and external heterogeneity
v. Understanding and establishing these themes
vi. Completing the results

## 5. Results

The findings from a comprehensive review of 31 articles highlight the well-being of female lecturers and its key influencing factors.

### 5.1 Summary of Studies According to Geographical Regions

The integration of insights from different geographic regions is essential for understanding how different cultures and backgrounds influence the well-being of female lecturers. In general, female lecturers in different areas face different unique challenges due to different cultural background.

In the past six years, the majority of studies focused on Asia. Of these, nine were in Indonesia (Arumsari, 2023; Cik et al., 2024; Farradinna et al., 2019; Farradinna et al., 2020; Handayani et al., 2023; Istiningtyas, 2021; Nova et al., 2022; Yudiani & Istiningtyas, 2022; Yudiani et al., 2024); three themes in Pakistan (Akram, 2020; Bashir & Khan, 2022; Fatima et al., 2024); one theme is in China (Wen et al., 2024); one theme in India (Tharini & Sowmiya, 2022); one theme in Oman (Rajagopal et al., 2024); one theme in Bhutan (Wangmo & Daker, 2021); one theme in Vietnam (Tam et al., 2021). Besides, seven studies focused on Africa (Eggley et al., 2021; Hardman et al., 2022; Iloakasia, 2024; Maboeta et al., 2023; Mends, 2023; Shadrack & Pillay, 2023; Umeh et al., 2021). In addition, six studies focused on Europe and the Americas, which includes two themes in USA (Elliott, & Blithe, 2021; Johnson et al., 2023); one theme in Canada (Gordon & Presseau, 2023); two themes in UK (Smith & Ulus, 2020; UYERI, 2024); one theme in Ireland (Nielsen, 2021) (Figure 3).

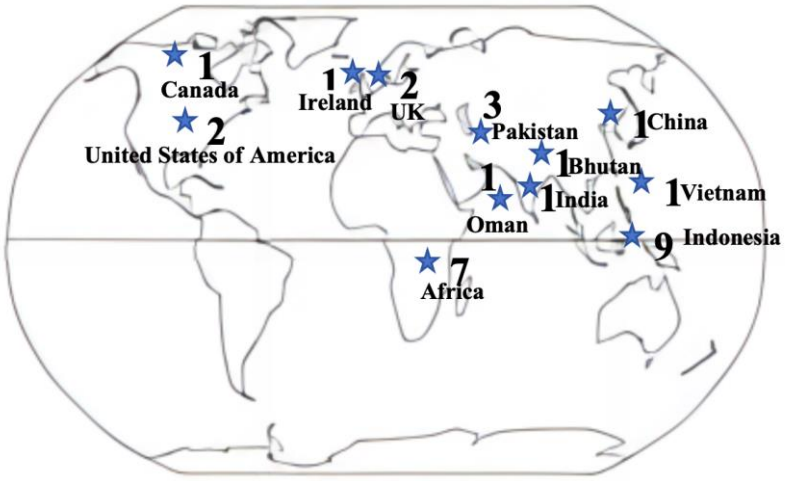


**Figure 3: Number of Significant Studies Identified in Different Geographic Regions Around Globe**

Research from Asia, particularly Indonesia, Pakistan, and China, emphasize that female lecturers have dual burden of work and life in conservative and traditional social background. In Indonesia, married female lecturers are often expected to take care of children due to the traditional role expectations for women, which leads female lecturers to balance between family and career (Arumsari, 2023; Cik et al., 2024; Farradinna et al., 2019; Farradinna et al., 2020; Handayani et al., 2023; Istiningtyas, 2021; Nova et al., 2022; Yudiani & Istiningtyas, 2022; Yudiani et al., 2024). In Pakistan, traditional patriarchal norms dominate, leading to expectations for women to prioritize domestic responsibilities, particularly in raising children, which is not beneficial to female lecturers' career development (Akram, 2020; Bashir & Khan, 2022; Fatima et al., 2024). In China, Wen et al., (2024) referred to significant challenges faced by female academics in balancing professional responsibilities with personal life, particularly in the Chinese context. These problems are much more obvious under China's three-child policy, increasing stress and necessitating the use of efficient work-life balancing techniques (Jiang et al., 2022).

In Africa, cultural and societal biases uniquely affect Black female academics. In this context, Black female academics are at a disadvantage in higher education and often constitute a small fraction in higher education institutions. Similar with Asia, African female lecturers also face societal expectations of taking care of children and other family obligations, making it harder for women to achieve a work-life balance, and this is due to Patriarchal Structures (Eggley et al., 2021; Hardman et al., 2022; Iloakasia, 2024; Maboeta et al., 2023; Mends, 2023; Shadrack & Pillay, 2023; Umeh et al., 2021).

In Europe and the Americas, their cultural background has both similarity and difference. In terms of similarity, the studies from two areas both focus on intersectionality of gender with other social categories like race and class. In many European contexts, like the UK and Ireland, cultural diversity led to challenges in academia for women from minority backgrounds (Nielsen, 2021; Smith & Ulus, 2020; UYERI, 2024). Similarly, in the U.S., women of color face unique challenges that are shaped by both gender and racial biases. In terms of difference, in some European countries, there may be greater societal support for work-life balance initiatives than in the U.S., and Americas have a more individualistic culture might leave female lecturers to solve these challenges without sufficient institutional support (Elliott, & Blithe, 2021; Johnson et al., 2023).

### 5.2 Summary of Reviewed Studies and Factors Influencing Female Lecturers' Well-Being

In higher education, female lecturers' well-being is a complex phenomenon influenced by various factors according to previous studies. Based on previous studies, generally, these factors can be categorized into three main domains: personal factors, social factors and environmental factors to ensure a systematic analysis.

#### 5.2.1 Personal Factors

Personal factors play a pivotal role in influencing the well-being of female lecturers. These include individual attributes such as work-family balance, resilience and occupational stress. Umeh et al. (2021) highlighted that work-family interface significantly correlates with both occupational and general well-being among female lecturers. Nova et al. (2022) emphasized that when female lecturers can balance their family and professional responsibilities, their overall satisfaction and well-being improve. Besides, one study reveals that about 8.1% of

psychological well-being is influenced by work-life balance, suggesting a positive relationship between these variables. The researchers note that female lecturers who have a balance between work and life tend to have higher psychological well-being (Yudiani & Istiningtyas, 2022). In addition, another research emphasized that some stressors that female lecturers may face could disrupt work-life balance, further affecting well-being (Tharini & Sowmiya, 2022). Handayani et al. (2023) pointed that work-family balance significantly contributes to the happiness at work for female lecturers ans both work-family balance and quality of life enhance happiness, which is mediated by factors such as job satisfaction, work engagement, and self-confidence. Iloakasia (2024) stated that the balance between their work duties and family obligations affects female lecturers' psychological well-being and job satisfaction. Fatima (2024) emphasized that a higher sense of well-being at work has the positive relationship with better work-family balance and better performance. Besides, another study discussed how sociocultural beliefs can impose pressures on women academics, making strong relationships vital for support and coping with work-life balance challenges (Wen et al, 2024). However, Akram (2020) has different findings, which include female lecturers have low psychological well-being but better family-work positive spillover. To sum up, based on previous studies, most of scholars believed that work-family balance is very important factor of female lecturers' well-being.

Maboeta et al. (2023) emphasize that women academics utilize their strengths, such as resilience, to navigate their work environments effectively, thereby enhancing their overall well-being. Another research's findings suggest that female lecturers' resilience significantly contributes to their productivity and well-being, particularly in high-pressure environments (Cik et al., 2024). Complementing these findings, Eggley et al., (2021) specifically investigates occupational stress among female lecturers. The authors highlight that female lecturers experience various stress-related health issues, such as headaches, back pains, insomnia, and heightened anxiety. These stressors adversely affect their overall well-being and job performance. On a similar note, Wangmo and Daker (2021) examined the effects of occupational stress on female educators' mental health, opining that stress can cause some individuals to feel overwhelmed, negatively affecting their personal and professional life. Nicholls et al. (2022) in their study explored the academic environment as a source of mental health concern and highlighted the occupational stress faced by female academic staff. Tharini and Sowmiya (2022) associate occupational stress with increased marital strife, fatigue, and diminished work quality, identifying these factors as significant problems for female lecturers. Mends (2023) reviews the adverse health consequences of occupational stress on female lecturers, noting lowered satisfaction with their job and diminished overall well-being.

### 5.2.2 Social Factors

The social factors of interpersonal relationships and empowerment, among others, are also relevant to the well-being of female lecturers. Women lecturers' wellness and emotional health is positively influenced by warm and trusting relationships. In the sub-context of emotions and well-being, one study during COVID-19 highlighted that female lecturers felt that maintaining caring relationships with students and fellow colleagues was beneficial to their wellness in tough times (Hardman et al, 2022). It was noted that interpersonal relationships are among the major determinants of wellness among women faculty members (Wen et al, 2024). Given the interpersonal and empathetic inclination often associated with women, a positive and harmonious interactions in the workplace and classroom can significantly contribute to their psychological and emotional well-being.

Women in the academic field face a plethora of challenges; thus, any attempts or initiatives at empowerment enables educators set forth positive changes to their well-being (Wangmo & Daker, 2021). Such supports are critical so than female academicians could maintain a thriving, high-quality and fair tenure, allowing them to perform optimally in their work environments while embracing their authentic interpersonal qualities in social interactions. Hardman et al. (2022) further emphasize this by analyzing the effects of empowerment on the mental health and well-being of women in senior academic positions and found that inclusive environments are essential for fostering overall wellness.

In addition, one study investigated how positive workplace culture increases the empowerment of female academic staff which improves their mental health and well-being (Johnson et al., 2023). Moreover, another study focused on the empowerment of female scholars concerning career progression while explaining how this fosters their psychological well-being (Maboeta et al., 2023). According to Fatima et al. (2024), empowerment has been explained from the standpoint of female lecturers in that it affects their self-esteem and confidence, which in turn improves their wellbeing, mental satisfaction, and autonomy. Maboeta et al. (2024) noted that women who feel empowered through self-care, effective self-advocacy, and utilizing their personal strengths are better able to safeguard and promote their wellbeing in the workplace. These forms of empowerment are thus closely linked to social factors that foster belonging, reduce isolation, and enhance female lecturers' emotional resilience and overall well-being.

### 5.2.3 Environmental Factors

The environmental factors, for instance, the resources available within the institution as well as the existing gender inequality, may either facilitate or obstruct female lecturers' well-being. Akram (2020) underscored the relevance of adequate institutional support in alleviating work-family conflict and enhancing the psychological well-being of female lecturers. Elliott and Blithe (2021) reported on the important impact of institutional support on the wellbeing of female scholars, noting that supportive policies and resources have an important impact on their professional satisfaction and overall mental health. Johnson et al. (2023) noted that institutionally provided policies and practices that promote support are critical for women lecturers suffering from the specific challenges stress. Cik et al. (2024) observed that institutional support is fundamental not only in enhancing the wellbeing of female lecturers but also in improving their performance and productivity. UYERI (2024) highlighted the impact of institutional mentoring and workload management on the mental and emotional wellbeing of female lecturers, noting the relevance of these support systems, while Maboeta et al. (2024) examined the impact of personal resources and institutional support, explaining how these combine to influence mental health. These findings provide heavy implications that equitable workload distribution, access to career development opportunities, supportive leadership, and family-friendly policies significantly shape the academic experience of female lecturers. When institutions actively address systemic barriers and create inclusive, resource-rich environments, they enhance lecturers' sense of security, autonomy, and satisfaction—ultimately promoting sustained well-being and professional growth.

Extending this idea, another study by Elliott and Blithe (2021) noted that women faculty members endure micro-aggressions and work-life conflict more often than male faculty members. These factors are associated with heightened levels of psychological stress and disenchantment with one's job, suggesting that gender discrimination can profoundly impact the health and wellness of female academic staff. Moreover, unsupportive relational dynamics with deans or other individuals in administrative positions significantly increases their

psychological distress.

Tharini and Sowmiya (2022) emphasized that gender-based stressors contribute to psychological distress among female lecturers, suggesting a clear link between gender inequality and reduced well-being within higher education. Maboeta et al. (2023) emphasized that women in the academic workforce face unique challenges that hinder their well-being, such as mental health issues and work-family conflict. Besides, during the COVID-19 pandemic, one article discussed the impact of gender inequality on work and mental health, emphasizing how the additional burdens faced by women academics in crisis situations affect their overall well-being (Gordon & Presseau, 2023). Nursyamsi et al. (2024) revealed that gender inequality is evident in senior academic roles, where women are underrepresented compared to men. Women's career advancement is often hindered by the challenges of balancing family commitments with academic careers, which directly impacts their well-being.

### 5.3 Analysis of the Key Influencing factors and Associated Theories

Considering all the above aspects, there are various factors influencing female lecturers' well-being, including work-family balance, resilience, occupational stress, interpersonal relationships, empowerment, institutional support, and gender inequality, which were categorized into three main groups: personal, social and environmental factors. While this categorization is justified for a systematic review analysis, it is crucial to recognize that these factors do not operate in isolation but interact in complex ways that can amplify or mitigate their impacts on well-being.

Incorporating established psychological and sociological reasoning into these factors, considering the interrelations and impact that each has on well-being, would strengthen the analysis. Role Theory (Kahn et al., 1964), Conservation of Resources Theory (Hobfoll, 1989), Self-Determination Theory (Ryan & Deci, 2000), Social Support Theory (Cohen & Wills, 1985), Feminist Standpoint Theory (Smith, 1987) are among relevant theories that can explain the complex multifaceted nature within which the factors operate with respect to female lecturers' well-being, providing a theoretical foundation for our subsequent findings.

Our findings are summarized in Table 2, in which work-family balance, occupational stress, empowerment, institutional support, and gender inequality are analyzed and regarded as five key or most important factors to influencing female lecturers' well-being.

**Table 2: The Number of Literatures Based on Influencing Factors**

| Category | Influencing factors | Corresponding Articles' authors | Number of studies identified |
|---|---|---|---|
| Personal factors | Work-family balance | (Akram, 2020); (Umeh et al., 2021) ; (Nova et al., 2022); (Yudiani & Istiningtyas, 2022); (Tharini & Sowmiya, 2022); (Handayani et al., 2023); (Iloakasia, 2024); (Fatima, 2024) ; (Wen et al, 2024) | 9 |
| | Resilience | (Maboeta et al., 2023); (Cik et al., 2024) | 2 |
| | Occupational stress | (Eggley et al., 2021); (Wangmo and Daker, 2021); (Nicholls et al., 2022); (Tharini & Sowmiya, 2022); (Mends, 2023) | 5 |
| Social factors | Interpersonal relationships | (Istiningtyas, 2021); (Hardman et al, 2022); (Wen et al., 2024) | 3 |

| | | | |
|---|---|---|---|
| | Empowerment | (Wangmo & Daker, 2021); (Hardman et al., 2022); (Johnson et al, 2023); (Maboeta et al., 2023); (Fatima et al., 2024); (Maboeta et al., 2024) | 6 |
| Environmental factors | Institutional support | (Akram, 2020); (Elliott & Blithe, 2021); (Johnson et al., 2023); (Cik et al., 2024); (UYERI, 2024); (Maboeta et al., 2024) | 6 |
| | Gender inequality | (Elliott & Blithe, 2021); (Tharini & Sowmiya, 2022); (Maboeta et al., 2023); (Gordon & Presseau, 2023); (Nursyamsi et al., 2024) | 5 |

### 5.3.1 Work and Family Balance

One of the factor influencing female lecturers' sabbatical pay satisfaction was work-family balance. Research claim that work and life balance is among the contributors of job satisfaction (Handayani et al., 2023). This is consistent with the Role Theory (Kahn et al, 1964) which accounts for phenomena of conflict when individuals face tasks which, from different life spheres, set out opposing demands. It is common for women academics to combine family responsibilities with demanding academic workloads, resulting in role strain and stress as the theory predicts. The Work-Family Border Theory (Clark 2000) assists in understanding the movements of women into and out of paid work and family care, suggesting that boundaries that allow movement not infrequently lead to spillover and wellbeing effects. Work-family balance is still an issue and not only stands alone; it interacts with and is deepened by other factors, which are lack of institutional support and gender discrimination and increases anxiety.

### 5.3.2 Occupational Stress

Most female lecturers, as major players in the teaching practicum, encounter a range of occupational stressors which can be harmful to their professional as well as personal life. These stressors comprise overwork, time constraints, and insufficient facilities for teaching (Eggley et al., 2021). Conservation of Resources Theory (Hobfoll, 1989) explains how these stressors consume valuable psychological resources over time and lead to burnout if demands outnumber resources. Likewise, the Job Demands-Resource Model (Demerouti et al., 2001) also describes how exhaustion and disengagement are due to high job demands and low resources. This occupational stress creates a ripple effect because it, first of all, reduces the cognitive and emotional resources necessary to cope with work-family conflict and then subsequently reinforces a vicious cycle of stress in one domain, aggravating stress in other areas. Together with inequality in the distribution of workloads by gender, this interaction can be particularly harmful to the wellbeing of female lecturers.

### 5.3.3 Empowerment Experiences

These experiences are major contributors to the self-growth and health of the female lecturers. Self-Determination Theory (Ryan & Deci, 2000) explains how empowerment as a phenomenon attends to the fundamental psychological needs of autonomy, competence, and relatedness, which are vital for intrinsic motivation and well-being. Engaging in other development activities enables academicians to achieve career milestones and boosts their self-esteem, which leads to a feeling of accomplishment. Psychological Empowerment Theory (Spreitzer, 1995) tries to explain these phenomena by outlining the empowerment processes and outcomes that enable female lecturers to experience worth through meaning, competence, self-determination, and impact, thereby integrating their identities at work and at home (Fatima et al., 2024). It is important to note that empowerment can act as a moderator that mitigates the harmful effects of occupational stress, together with gender discrimination, creating positive resource gain spirals as explained in Conservation of Resources Theory. On

the other hand, in the absence of empowerment, stressors tend to be exacerbated.

### 5.3.4 Coping Strategies and Institutional Support

In order to combat stress, social support, and time management are two vital coping strategies (Smith & Ulus, 2020). The Social Support Theory (Cohen & Wills, 1985) provides cognitive reasoning as to why social support acts as a buffer against stress; it offers emotional, informational, and instrumental aid that improves coping ability. Organizational Support Theory (Eisenberger et al., 1986), which states that perceived organizational support leads to increased commitment, job satisfaction, and wellness, offers an understanding of supportive institutional policies such as work-life balance initiatives and childcare services. Iloakasia (2024) argues that these measures not only mitigate stress, but also enhance job satisfaction and retention rates among females, as previously predicted by these frameworks. There is a synergistic effect - the combination of personal coping strategies and institutional support - in the presence of both, female lecturers are better able to deal with other issues such as work-family conflict and occupational stressor challenges. On the other hand, without any institutional support, even the best individual coping strategies are bound to fail when contending with systemic difficulties.

### 5.3.5 Gender Inequality and Professional Demands

The power relations at the workplace are worsened by gender discrimination for women lecturers in academic institutions. Feminist Standpoint Theory (Smith, 1987) and Gendered Organizations Theory (Acker, 1990) explain how institutions of higher learning are dominated by masculine ideology and values, which marginalize women. Stress is further compounded by factors such as increased class contact time and being in lower positions in the institution (Nursyamsi et al., 2024; Elliot & Blithe, 2021). Intersectionality Theory (Crenshaw, 1989) gives an account of the ways in which different social divisions (gender, race, class) interact to constitute different forms of subordination and inequality. This divide gives rise to tension and a self-perpetuating pattern of role conflict and family strain, which erodes the well-being of women academics, in line with what these theories suggest. Gender inequality further serves as an explanation for deepening the level of various other difficulties it increases the probability of experiencing work overload, prevents the suffering from gaining an empowering opportunity, and sets other obstacles to the work family balance, which contributes to well-being in a multiplicative rather than an additive way.

The interactions between these factors produce intricate feedback systems that can either bolster or diminish the wellness of female lecturers. In addition, strong institutional support helps to alleviate work family conflicts and occupational stress. Additionally, empowering experiences can promote resilience, thus helping female lecturers deal with gender inequalities. On the contrary, the combined effect of numerous stressors, such as high occupational stress, excessive family duties, and prejudice against women, is more devastating than any of the individual factors.

The most visible of such dynamics comes in a number of important forms. These one or more patterns in which one area's resource problem exhausts the resources required to solve another are termed resource depletion chains. For example, high levels of stressed work may deplete emotional and cognitive resources essential to performing the family role, leading to work-family conflict. This leads, through a negative reinforcing cycle, to heightened occupational stress. In female lecturers who experience institutional discrimination and support barrier particular strong social support networks provide, a compensatory effect would be observed. Finally, total well-being is not as strongly impacted by the change caused by a single factor

in question as it would be by the combined impact of a different factors above a certain level.

The difficult "time scale" of their interactions is another complexity. Constant exposure to multitude of stressors over time can erode resilience and overexpose female lecturers to greater risk. For example, a senior lecturer in some institutions with heavy teaching load and covert gender bias is often made to look as if she is really resilient. However, over time, and with the accumulation of additional family responsibilities, she is more likely to experience burnout. This consideration of the temporal accumulation of stress across domains underscores the need for preventive as opposed to reactive support systems.

In addition, cultural and contextual factors also modify the nature of the relationships among the variables in different academic cultures and regions. For example, in collectivist cultures, the extended family may help in the absence of adequate institutional childcare unlike in individualistic cultures where women lecturers depend more on the institutional childcare policy. The other extreme is the degree of anti-discrimination legislation together with the prevailing dominant culture concerning gender relations. Such factors greatly determine the extent to which the already existing gender inequalities are exacerbated by other stressors.

Grasping these interactive relationships is critical in formulating comprehensive interventions targeting the complex issues of female faculty members in higher education (Figure 4). Instead of addressing each factor individually, effective support should focus on the links between factors, breaking negative feedback loops and enhancing positive ones. This approach to the well-being of female lecturers is exciting for institutional policy and future research on women's higher education issues.

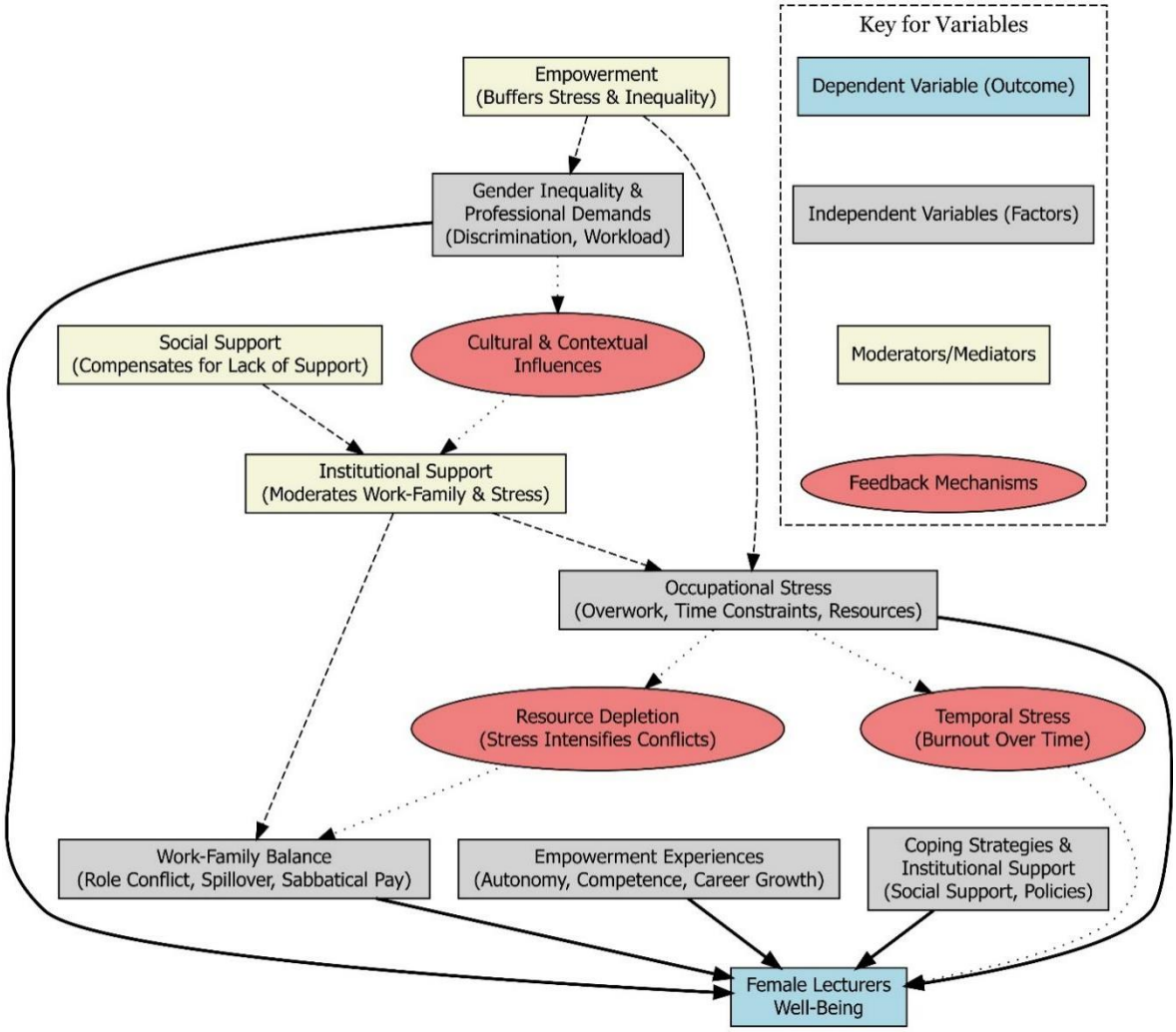


**Figure 4: Overview of the Key Factors and Mediators or Moderators Influencing Female Lecturers' Well-Being**

### 5.4 Actionable Recommendations

To enhance female lecturers' well-being, Higher Education Institutions (HEIs) should implement a comprehensive set of actionable solutions across five key areas. The following strategies include specific implementation approaches, potential barriers, and facilitators to make these recommendations more practical and actionable.

#### 5.4.1 Work-Family Balance Initiatives

The implementation strategies include:

i. Develop institutional policies that permit remote working or flexible working hours, including specific procedures regarding how female lecturers can transition to and out of these arrangements during significant life events such as caregiving periods (Begum et al., 2024).

ii. Implement a campus-wide survey to ascertain the most critical childcare needs before onsite provision is considered, along with collaboration with local providers if full onsite provision is not immediately possible (Rajagopal et al., 2024).

The potential barriers include the following:

i. Limited funds and space available for childcare centers: Childcare centers are also part of the educational institutions that operate with insufficient resources, which makes it hard to adequately finance the establishment and maintenance of childcare centers.
ii. Scheduling issues stemming from reluctance of heads of departments: Flexible time policies can be met with resistance from department heads who are worried that established workflows, continuity of instruction, and productivity will be disrupted.

*Facilitators:*

i. Use more willing departments to demonstrate effectiveness through pilot programs: Understanding and working with units that are willing to accept flexible policies provides good case studies in retention, productivity, and morale, which is employee satisfaction.
ii. Employ digital calendars to better organize and control flexible scheduling: The deployment of fully fledged flexible and digitalized work scheduling systems will provide the most effective visibility around implementation of flexi working while also ensuring that essential responsibilities are adequately supervised and performed.

### 5.4.2 Occupational Stress Reduction

Implementation strategies include:

i. Create a comprehensive model for workload calculation that incorporates all academic functions (teaching, research, and administration), and regularly check that there is equitable division of work among males and females.
ii. Introduce a "communication hours policy" that sets expectations for email correspondence and prohibits after-hours communications unless in real emergencies (University and College Union, 2023).
iii. Create a mental health resource office that is not only knowledgeable about the academic workplace's stressors, but also offers in person and virtual consultations during extended hours.

*Potential Barriers:*

i. Resistance to social norms that control communication during free time: Many academic settings operate with a ‘always on’ culture in which people expect emails and messages to be responded to even during evenings, weekends, and holidays.
ii. Standardization of workload measures across many different fields is challenging: There is a broad variation among academic disciplines in the methods of teaching, conducting research, and serving, which hampers equity in the workload measurement in relation to the overall contributions of faculty members.

*Facilitators:*

i. Department champions who model healthy communication boundaries: Senior faculty members and administrators actively engaged in advocacy for communication boundaries can effect strong cultural change by showing that setting limits does not interfere with productivity or excellence.
ii. Regular workload transparency reports shared across departments: Inter-faculty reporting of workload activity for every faculty member and instructor of all

departments has the potential to reveal imbalances and enable conversations about reasonable expectations based on data.

### 5.4.3 Empowerment Strategies

Implementation strategies include:

i. Prepare an outline for a professional development program that will have quarterly workshops designed specifically to teach negotiation, grant writing, and publication strategies with the purpose of addressing barriers positioned against women (Ngoc et al., 2020).
ii. Encourage a research support fund in aid of women academics on career breaks or those with primary caregiving duties.

*Potential Barriers:*

i. Time constraints limiting participation: Female faculty members often deal with the responsibility of teaching, conducting research, providing service, and undertaking excessive care giving activities, making it extraordinarily challenging to fit professional development activities or self-care programs into their schedules.
ii. Insufficient resources for targeted programs: Universities often do not have appropriate funding sources for the well-being of female academics which leads to such programs being underfunded or only available for limited periods of time and thus unable to have a sustainable impact.

*Facilitators:*

i. Schedule workshops with multiple time options, including online recording alternatives: A flexible policy for program implementation that includes varying scheduling (morning, afternoon, or evening sessions) and hybrid and fully online formats enables women academics to participate within their constrained availabilities.
ii. Seek external partnerships with foundations focused on gender equity in academia: Working with bodies can help in providing additional funding, developed curriculum, and even skilled resources for the implementation of effective programs.

### 5.3.4 Institutional Support Systems

Implementation strategies include:

i. To better support female academics, create a formal mentorship program with clearly defined goals, prepared trainers, and meeting schedules so mentors can provide consistent support.
ii. Schedule both virtual and face-to-face networking opportunities for female academics from various departments. Set aside time during regular work hours for these events (Center for the Education of Women, 2021).
iii. Adopt a ‘family care leave bank’ policy where faculty members can voluntarily contribute unused leave days for the benefit of faculty members who have caregiving responsibilities (Nova et al., 2022).

*Potential Barriers:*

i. Finding sufficient senior female academics to serve as mentors: Women's persistent underrepresentation in senior academic ranks represents a major bottleneck to mentoring programs as the few women at these levels often experience mentoring overload and service burnout.
ii. Scheduling challenges for cross-departmental networking: Different academic departments normally have dissimilar teaching periods, research deadlines, and

administrative cycles, which makes it extremely impossible to identify some common available time for interdisciplinary networking functions.

*Facilitators:*

i. Consider emeritus faculty as potential mentors to expand the pool: The utilization of retired female academics still associated with the university can dramatically enhance the available resources for mentorship leveraging their experience and knowledge of the institution.
ii. Integrate networking opportunities into existing institutional events: The integration of structured networking parts into standing university functions such as a faculty senate meetings, convocations, or research symposiums, teaching workshops offers the most flexibility with no further time constraints.

### 5.3.5 Gender Equality Initiatives

Implementation strategies include:

i. Carry out gender pay audits at an interval of six months, ensuring report transparency and setting deadlines for rectifying any highlighted issues.
ii. Unconscious bias training for all members of hiring and promotion committees is obligatory, with refresher sessions required biannually (Nielsen, 2021).
iii. Build a publicly accessible gender equity dashboard with essential metrics (rates of positions in leadership, promotions, etc.) that institutional leadership routinely reviews every three months (Nursyamsi et al., 2024).

*Potential Barriers:*

i. Resistance to transparency in salary information: Most establishments foster environments of salary secrecy which allows for the systemic manipulation of compensation inequalities based on gender to persist, wherein administrators tend to use privacy issues or the lack of comprehensive compensation data as competitive advantages as excuses to not provide pay equity information.
ii. Slow institutional decision-making processes: Universities have a reputation for operating via complex governance systems that can involve dozens of committees, administrative reviews, and approval stages that slow down policy changes from months to years. This is particularly true for policies that deal with broad systemic areas, such as gender equity.

*Facilitators:*

i. Phased implementation approach beginning with anonymized data: The starting point of an aggregated departmental salary data aligned by gender, rank, and years of service makes it possible to detect potential cases of salary inequity without raising issues of privacy or individual comparison.
ii. Create a dedicated gender equity task force with executive authority: The creation of a formal entity that is fully accountable and directly reports to the university leadership with a defined budget and a clear mandate to act on approved recommendations has the potential of transforming the pace of change within the traditional academic structures.

With the application of these standard action steps, higher educational institutions will be able to foster a more supportive and inclusive environment that promotes the well-being of female lecturers, enhances job satisfaction, improves the psychosocial contract within academic settings, and ultimately benefits the whole academic community.

## 6. Conclusion

This review underscores the pressing need for higher education institutions to take a more proactive and structured approach in addressing the well-being of female lecturers. The synthesis of diverse studies reveals that personal, social, and environmental factors are interrelated and have a profound impact on female academics' well-being. Among the most critical factors are work-family balance, occupational stress, empowerment opportunities, coping strategies, and gender inequality.

Achieving work-family balance is crucial for enhancing well-being, yet female lecturers often face conflicting responsibilities that lead to stress and reduced quality of life. Occupational challenges such as heavy workloads and limited resources further strain their mental health. Empowerment through professional development fosters personal growth and strengthens identity. Coping strategies like time management and seeking social support, alongside institutional measures such as work-life policies and childcare facilities, are vital for sustaining performance. Additionally, persistent gender inequalities—manifesting as disproportionate workloads and limited leadership representation—intensify stress and work-family conflict. Addressing these systemic issues is essential to promoting equity and improving female lecturers' well-being in higher education. While this study has certain limitations, its strength lies in the use of an inductive-deductive approach that allows for a comprehensive synthesis of diverse findings. Ultimately, this review underscores the urgent need for holistic, gender-sensitive policies and sustained institutional commitment to cultivating a supportive academic environment that prioritizes the well-being of female lecturers in higher education.

## 7. Implications and Significance

### 7.1. Contextual Relevance

This study is important in understanding the discourse on gender equality and well-being in academia. Women's lecturers' well-being is influenced by several complex intersecting factors, such as work-life integration, workplace distress, empowerment, institutional assistance, and gender discrimination, which is an undervalued sociological issue. A better and complete understanding of these interrelations is critical for higher educational institutions, policymakers, and other partners to devise strategies that will foster more supportive and equitable academic cultures. Addressing the issues these insights provide describes the supporting social, personal, and environmental problems that can be solved. These aspects can be used to bring more inclusivity in the workplaces, which to some extent are dominated by male professionals in academic disciplines.

### 7.2. Theoretical Impact

This study integrates evidence from different sources to fill gaps in existing theories of workplace well-being and gender concerns in academic settings. The findings confirm the Work-Family Conflict Theory (Greenhaus et al., 1989) that posits the existence of well-being challenges for individuals in roles at conflict between work and family responsibilities. Also, the study adds to the Organizational Support Theory (Kurtessis et al., 2017)about the system's policies concerning the female academic's well-being and supporting the theory. The confirmation of the relationship between empowerment and job satisfaction also confirms self-efficacy and psychological capital theories. The study complements and further develops existing research on job satisfaction and mental health in higher education by emphasizing the

need for the balance between work and family, and management of occupational stress.

### 7.3. Practical Outcomes

The study's findings have important implications for various stakeholders, including university administrators, policymakers, and faculty members. First, institutions need to prioritize policies that facilitate work-life balance, such as flexible working hours, childcare services, and support specifically tailored for female lecturers. Additionally, universities should implement mental health and well-being programs that offer stress relief services, counseling, and mental health support that address the unique challenges faced by female lecturers. Empowerment initiatives, such as mentoring programs, can also be instrumental in boosting female lecturers' confidence and career development. Furthermore, institutional support and gender equity measures are crucial, with gender-related policies and a focus on non-discrimination and supportive practices helping to bridge gender gaps in academic settings. Finally, fostering improved social support networks through faculty groups, peer support systems, and "Talking Heads" groups can significantly enhance both well-being and job satisfaction for female lecturers.

## 8. Limitations

This comprehensive review study has found key factors of female lecturers' well-being in higher education, with several limitations observed. Two major limitations recognized in this study were internal and external validity. Previous studies on women's job satisfaction as lecturers were conducted in specific cultural or institutional contexts and therefore cannot be generalized to women with different work environments, different geographical locations, or different types of higher education institutions. For example, when considering the problems faced by female academics, one may be surprised to find that the dilemmas faced by female academics in Western countries may be very different from their counterparts and in developing countries, where the culture and work organization differ.

Another shortcoming is that this study did not explore gender differences from an intersectionality perspective. However, gender was not the only driver for these female lecturers, meaning that other factors, race, ethnicity, age and sexual orientation were all determinants of their academic experiences and well-being. A more intersectional approach would complement previous studies, and the two integrated courses would actually help understand how multiple forms of oppression interrelate to shape women's experiences in academia.

In conclusion, the positive comparative results regarding the well-being of female lecturers in higher education clearly point out several limitations that need to be considered when drawing conclusions from the presented findings or developing necessary plans to improve the professional status and well-being of female academics.

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