



2024 PROCEEDING

**5TH PENANG INTERNATIONAL
MULTIDISCIPLINARY CONFERENCE
2024 (5TH PIMC 2024)**



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PREFACE

As we gather for the 5th Penang International Multidisciplinary Conference 2024 (5th PIMC 2024), it is with great anticipation and enthusiasm that we embark on this collaborative journey of knowledge exchange and academic discourse. Hosted amidst the serene ambiance of Shangri-La Golden Sands, Penang, overlooking the enchanting Batu Feringgi Beach, this conference promises to be a platform of intellectual enrichment and cross-disciplinary engagement.

Over the course of two days, esteemed scholars, researchers, practitioners, and industry experts from around the world will converge to share insights, present findings, and engage in meaningful discussions across a diverse spectrum of disciplines. From the realms of science and technology to social sciences, humanities, medicine, engineering, and beyond, the 5th PIMC 2024 endeavors to explore the intersections and synergies that drive innovation and progress in our ever-evolving global landscape.

Through keynote addresses, panel sessions, paper presentations, and poster exhibitions, participants will have the opportunity to delve into the latest research trends, exchange perspectives, and forge valuable connections that transcend disciplinary boundaries. This conference serves as a catalyst for fostering interdisciplinary collaboration, driving impactful research, and addressing the multifaceted challenges confronting our society today.

As we navigate through this dynamic intellectual milieu, we are reminded of the rich cultural heritage and vibrant spirit of Penang, a melting pot of diverse traditions, cuisines, and experiences. Beyond the confines of the conference halls, delegates are encouraged to immerse themselves in the sights, sounds, and flavors of this enchanting island, further enhancing their conference experience.

We extend our sincere gratitude to all participants, organizers, sponsors, and partners for their unwavering support and commitment to making the 5th Penang International Multidisciplinary Conference 2024 a resounding success. Together, let us seize this opportunity to inspire, innovate, and ignite positive change as we chart the course towards a brighter and more sustainable future.

May the proceedings of the 5th PIMC 2024 be marked by fruitful collaborations, stimulating discussions, and lasting friendships, paving the way for continued academic excellence and societal impact.

Thank you, and welcome to the 5th Penang International Multidisciplinary Conference 2024!

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CODE-SWITCHING AS A TEACHING AND LEARNING STRATEGY IN ESL CLASSROOMS

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Abstract: *This research paper examines the phenomenon of code-switching in ESL classrooms in Malaysia, where English teachers often employ the Malay language as a support tool for teaching and learning. The study aims to investigate the reasons behind code-switching among students and lecturers in the English language classroom at Malaysian Polytechnics and explore how it contributes to their language acquisition goals. A descriptive qualitative research design was employed, and data were collected through self-administered questionnaires from English language lecturers and semester four students. The results reveal that both lecturers and students hold positive attitudes towards code-switching, recognizing its potential benefits in terms of language learning, teaching strategies, student comfort, and lesson comprehension. Lecturers employ code-switching for various purposes such as clarification, tension easing, explaining language differences, socializing, and rephrasing utterances. Students frequently code-switch to aid language learning, foster a comfortable learning environment, and improve comprehension. While lecturers exhibit more neutral perspectives, students express stronger agreement towards code-switching. The findings highlight the pedagogical implications of code-switching, emphasizing its value as a tool for language acquisition and the need for strategic use and gradual reduction as learners progress. Creating a supportive learning environment that balances code-switching with target language engagement is essential. By leveraging the benefits of code-switching and promoting active engagement with the target language, educators can create inclusive language learning environments that facilitate learners' overall language proficiency development.*

Keywords: *Code Switching, Bilingual Education, Second Language Acquisition, Teaching and Learning Strategy, Inclusive Classrooms*

Introduction

Code-switching, observed among bilingual individuals, involves alternating between languages or dialects during communication, aiding effectiveness across linguistic levels (Gardner-Chloros, 2009). In education, English teachers typically use English exclusively, influencing student linguistic patterns (Marsella, 2020; Crawford, 2004). Yet, research shows instances of L1 use by teachers in L2 classrooms to aid understanding (Desoyo, 2021). García (2009) and Wijaya (2021) highlight students and teachers employing multiple languages for comprehension. This tension between language use strategies complicates policy formulation and curriculum planning, posing challenges in English teaching objectives. This study explores code-switching perspectives among Malaysian Polytechnic students and lecturers to understand its strategic role in ESL classrooms.

Literature Review

Weinreich (1953) and Gumperz (1982) defined code-switching as alternating between languages in speech. This practice, often occurring in the second utterance, ranges from word exchanges to complex sentence structures. Researchers like Myers-Scotton (2001), Valdés-Fallis (1978), Heller (2006), and Chana and Romaine (1984) offer similar definitions, shaping code-switching as linguistic interchanges within a dialogue. This study adopts a comprehensive view of code-switching, encompassing language interchange at various linguistic levels (words, phrases, clauses, and sentences) among multilingual speakers.

Students' and Educators' Perspective

Students often prefer using their native language (L1) in L2 classrooms for language barrier resolution, with studies showing positive responses to code-switching (Al Tale & Alqahtani, 2020). They favor L2 instruction by L1-proficient teachers (Bateman, 2008; Hertel & Sunderman, 2009; Tajgozari, 2017). Educators' concerns about L1 use overlook its benefits, aiding comprehension and social cohesion (Galali & Cinkara, 2017). Studies by Tian and Hennebry (2016) and Hlas (2016) indicate L1 preference for complex topics and vocabulary explanation. Students rely on L1 for translation and writing, with its extent varying based on L2 proficiency (Hanáková & Metruk, 2017; Boustani, 2019; Al-Musawi, 2014).

While many students heavily rely on their L1 in L2 classrooms, broader acceptance of this strategy among educators and policymakers is limited. Educators' perspectives on code-switching vary, with some endorsing its value. Karakaya and Dikilitaş (2020) highlight code-switching as beneficial for teaching and promoting social interaction in EFL classrooms. Kohi and Lakshmi (2020) find widespread support among EFL/ESL teachers for using L1 in instruction, emphasizing its role in translation, content explanation, and social interactions. However, skeptics fear code-switching may distract from core linguistic content, hindering L2 acquisition (Yao, 2011).

Şener and Korkut (2017) argue for prioritizing L2 use in EFL classrooms, aiming to enhance speaking practice and overall English communication. Meanwhile, De La Campa and Nassaji (2009) and Murga, Damian, and Tacoaman (2018) note varying attitudes among educators within institutions, reflecting the complexity of instructional decision-making.

Usefulness and Reasons for Code-Switching

Traditional perspectives on the efficacy of code-switching in language education are polarized, with advocates and critics. In second language acquisition (SLA), scholars such as Chambers (1991), Ellis (2008), and Turnbull (2001) emphasize maximizing L2 usage to avoid hindrances to overall learning caused by excessive L1 reliance (Polio & Duff, 1994). Studies, like Giannikas (2011), demonstrate the feasibility and effectiveness of minimizing L1 use, promoting better L2 acquisition through clear L2 instruction (Krashen, 1985).

However, proponents of an English-only policy, such as Parker et al. (1995), argue for exclusive L2 immersion to enhance proficiency, citing its positive impact on language mastery (Voicu, 2012; Wong, 2010). Heavy L1 use, as found in studies like Izquierdo et al. (2016), is associated with lower English achievement, particularly in EFL contexts. Additionally,

incorporating L1 can disrupt lesson plans and allocate more time to instruction (Mahboob, 2010). Despite these arguments, some educators believe L1 integration can alleviate learning challenges, especially for proficient L2 learners (Ortega, 2014).

While some scholars perceive code-switching as indicative of linguistic limitations, recent research suggests its potential to enhance second language acquisition (SLA) when employed effectively. Increasingly, scholars advocate for its use in L2 classrooms, benefiting both educators and students in language learning (Ellis & Natsuko, 2014). Bilingual students may fail to leverage this cognitive advantage in learning L2 if not tapped effectively (Arenas-Iglesias, 2016; Moeller & Roberts, 2013).

Large-scale studies, like De la Fuente and Goldenberg's (2020), demonstrate significant improvements in L2 acquisition when incorporating L1 in EFL classrooms (Lopes & Ruiz-Cecilia, 2019; Bhooth, Azman, & Ismail, 2014; Shabir, 2017; De La Campa & Nassaji, 2009). Atkinson (1987), Cook (2013), and Liu (2008) argue that judicious use of L1 aids in L2 acquisition without impeding learning. Almoayidi (2018) advocates for selective L1 use alongside L2 rather than replacing it entirely, as supported by Fauziati, Hidayat, and Susiati (2020) in Indonesia.

Studies highlight various benefits of strategic L1 use, including aiding comprehension, disciplinary management, humor, engagement, empathy display, emphasizing points, and reducing ambiguities (Cahyani, Courcy, & Barnett, 2016; Laufer & Nathan, 2008; Bashir & Author, 2015; Gulzar, 2010; Taniş, Şensoy, & Atay, 2020; Sa'd & Qadermazi, 2015; Karakaya & Dikilitaş, 2020; Cook, 2013). Incorporating L1 in classrooms facilitates L2 development and enhances language efficiency (Pan & Pan, 2010).

Encouraging L1 use in the classroom strengthens teacher-student relationships, motivating participation (Cahyani et al., 2016), enhancing student involvement and confidence (Karakaya & Dikilitaş, 2020; Pan & Pan, 2010). L1 facilitates natural interactions and emotional expression (Lin, 2013; Cook, 2001; Wei, 1998), reducing speaking anxiety and improving vocabulary acquisition (Boustani, 2019; Afzal, 2012). Pair and group work in EFL classrooms remains effective even with L1 use (Storch & Aldosari, 2010). The integration of bilingual approaches requires comprehensive teacher training (Hanif, 2020).

The discourse on code-switching reveals a wide range of perspectives influenced by methodological differences, hindering consensus and generalizability. Despite ongoing debate, research remains crucial for understanding code-switching's function in ESL classrooms, aiding both academic and social objectives.

In order to achieve the aim of this research the following research questions were formulated:

1. What are the attitudes of instructors and students towards the practice of code-switching?
2. To what extent do instructors and students engage in code-switching?
3. What are the underlying reasons for instructors and students to code-switch in the ESL classroom?

Methodology

This study investigates code-switching among lecturers and fourth-semester students in English as a Second Language (ESL) classes at PTSB. To achieve this, a descriptive research design is employed, allowing effective summarization of individual or group characteristics (Fraenkel & Wallen, 2009). This design is suitable for exploring factors influencing code-switching practices among fourth-semester students in ESL classrooms at PTSB, especially when dealing with a large population (Burns & Bush, 2014). For precision, a quantitative approach is chosen, offering a systematic method for collecting and analyzing numerical data using statistical techniques.

The study involves 13 qualified English language lecturers and 235 fourth-semester students from PTSB, ensuring a minimum five years of teaching experience for lecturers. The inclusion criterion minimizes ineffective code-switching due to lack of experience. Students, representing all four academic departments, are sampled using simple random sampling, providing an unbiased representation of the student population (Kothari, 2004). The sample size adheres to Krejcie and Morgan's (1970) guideline. These students are fluent in Malay and English, undergo a mandatory Communicative English Course at PTSB.

Two self-administered questionnaires, one for lecturers and one for students, were utilized to collect qualitative data. Adapted from previous studies (Horasan, 2014; Rose & Dulm, 2006; Barandagh et al., 2013; Momenian & Samar, 2011), the questionnaires consist of two sections. Section 'A' gathers demographic information, providing insights into factors influencing perspectives on code-switching. Section 'B' employs a 5-point Likert scale to capture participants' perspectives on code-switching in ESL classrooms. To address language concerns, each item includes a Malay translation, mitigating potential misinterpretations by students.

Theoretical Framework

This study is grounded in the theoretical framework of Gumperz (1982) Semantic Model of conversational code-switching. Gumperz's model has been widely employed in research to understand the functions of code-switching in various contexts. Although this model primarily focuses on code-switching in conversations in general, it provides a solid foundation for analyzing the use of code-switching in the ESL classroom.

In Gumperz's classification, code-switching was divided into two types: situational code-switching and metaphorical code-switching. Situational code-switching involves changes in the setting, topic, or participants. While, metaphorical code-switching refers to instances where code-switching occurs without being prompted by changes in the social context. Metaphorical code-switching serves various purposes, such as quotation, addressee specification, interjections, reiterations, message qualification, and personalization versus objectivization.

However, it is important to note that Gumperz's model does not specifically address the reasons for employing code-switching in the classroom setting. To address this limitation and fulfill the objectives of this study, the researcher has adapted and modified the functions of code-switching proposed by other scholars who have specifically examined code-switching in educational contexts.

In particular, the researcher has drawn upon the works of Horasan (2014), Rose and Dulm (2006), Barandagh et al. (2013), and Momenian and Samar (2011), who have extensively studied the reasons for practicing code-switching among students in classroom settings. Their insights and findings have been instrumental in shaping the design of this research instrument and ensuring its relevance to our research objectives. By utilizing this theoretical framework and employing the modified questionnaire, the researcher aims to shed light on the attitudes of instructors and students towards code-switching and the underlying reasons behind its usage in the ESL classroom.

Results

Lecturers' Attitude towards Code-Switching

The data reflects a generally positive attitude among English language lecturers towards the use of code-switching in the English language classroom. More than half of the respondents agreed or strongly agreed that code-switching should be used (46% agree, 8% strongly agree) while almost three-quarters of them perceived that it helps students learn the English language (62% agree, 8% strongly agree). This suggests that these lecturers recognize code-switching as a useful tool in facilitating language learning. The data also revealed that lecturers view code-switching as a strategy for the teaching and learning process. A substantial majority (69%) agreed that code-switching is a viable teaching strategy, while an additional 8% strongly agreed with this statement.

Interestingly, when examining the impact of code-switching on students' comfort, all the lecturers agreed (77% agree, 23% strongly agree) that code-switching makes students feel comfortable and secure in the English language classroom. This indicates that lecturers strongly considered code-switching as a means to create a non-threatening environment, potentially leading to enhanced student participation and learning outcomes. When asked about its effect on student understanding, 54% of respondents agreed and 15% strongly agreed that code-switching helps students follow their lessons better. These show that code-switching may improve students' comprehension and facilitate their engagement with the material.

Overall, the data reveals that the lecturers seemed to have a positive attitude towards code-switching practice. They recognize its potential benefits in terms of language learning, teaching strategies, student comfort, and lesson comprehension. These findings suggest that code-switching can be considered a valuable pedagogical tool in the English language classroom, aligning with the lecturers' perceptions and preferences.

Lecturers' Reasons for Practicing Code-Switching in English Language Classroom

Upon analyzing the data on English language lecturers' reasons for employing code-switching in the classroom, several patterns and trends emerge. One notable trend is that the highest frequency of "often" and "always" combined is observed in the statement, "I code-switch because I want to clarify something," with a combined frequency of 46%. This implies that lecturers frequently use code-switching to provide additional explanations or ensure that students understand the content being taught. The high occurrence of code-switching for clarification suggests that lecturers prioritize effective communication and comprehension in their classrooms.

Another reason that stands out is, "I code-switch because I want to ease tension and inject humor," with a combined (often and always) frequency of 38%. This finding suggests that lecturers use code-switching as a pedagogical tool to create a relaxed and engaging classroom environment. By incorporating humor and light-heartedness, lecturers can potentially enhance students' motivation and enjoyment of the English language learning process. Additionally, "I code-switch when socializing with the students" shows a combined (often and always) frequency of 31%. This indicates that lecturers utilize code-switching to build rapport and establish a connection with their students. Socializing through code-switching may help bridge cultural and linguistic gaps, making students feel more comfortable and fostering a positive learning atmosphere.

The statement "I code-switch when explaining differences between first and second language" also has a combined (often and always) frequency of 31%. This finding suggests that lecturers frequently switch between languages to compare and contrast aspects of the students' native language with English. By doing so, lecturers can highlight nuances, address common errors, and facilitate a deeper understanding of language structures and concepts. On the other hand, the statements with the least frequency of "often" and "always" combined are "I code-switch because I want to manage or control the class" and "I code-switch when moving from one activity to another," both with a combined frequency of 8%. This implies that lecturers rely less on code-switching for classroom management and transitioning between activities. Lecturers may prefer alternative strategies for maintaining discipline and smoothly transitioning between tasks, indicating a potential focus on maintaining a consistent language environment during instruction.

It's worth noting that there are relatively fewer instances of "often" or "always" responses in the dataset, indicating that extreme or consistent use of code-switching is less prevalent among the surveyed lecturers. Instead, a majority of responses fall within the occasional or sometimes categories, suggesting that lecturers employ code-switching strategically and selectively rather than as a default approach. Overall, the data reveals that English language lecturers employ code-switching in the classroom for various purposes, including the most frequently (often and always combined) used for clarification followed by easing tension, explaining language differences, socializing and rephrasing utterances. Code-switching is seen as a tool to enhance language learning, foster engagement, and create a positive classroom environment. These findings indicate that lecturers recognize the potential benefits of code-switching in facilitating language acquisition and pedagogical interactions with students.

Students' Attitude towards Code-Switching

This data provides valuable insights into students' attitudes towards the practice of code-switching in English language classrooms. First and foremost, a remarkable majority of students (86.7%) expressed agreement or strong agreement that code-switching should be allowed in the English language classroom. Similarly, an impressive 91.3% of respondents agreed or strongly agreed that code-switching helps them learn the English language. This overwhelming support indicates that students recognize the value of code-switching as a linguistic resource, enabling effective communication and fostering a conducive learning environment.

Furthermore, when asked about the role of code-switching as a strategy for teaching and learning, a substantial proportion of students agreed (58.2%) or strongly agreed (33.1%) that it serves as an effective approach. This implies that students recognize the intentional use of code-switching by teachers as a pedagogical approach rather than a mere linguistic phenomenon. A significant number of students (89.5%) agreed or strongly agreed that code-switching creates a comfortable and non-threatening environment. This sentiment suggests that code-switching allows students to express themselves more freely and engage in classroom activities without fear of judgment or making mistakes. Correspondingly, when asked whether code-switching helps students follow the lesson better, a majority of students (87.9%) agreed or strongly agreed. This finding indicates that code-switching can serve as a bridge between the students' native language and English, facilitating their comprehension and understanding of the lesson content.

Although the majority of students hold positive attitudes towards code-switching, there are some notable patterns worth mentioning. Notably, in some statements, there were a few students who disagreed or strongly disagreed with the use of code-switching. However, these percentages were relatively low, ranging from 0.4% to 1.2%. These outliers may represent a small subset of students who have differing preferences or experiences regarding code-switching. It would be beneficial to further investigate their perspectives to understand their concerns and address any potential barriers to accepting code-switching as a valuable tool in the classroom.

In summary, the data analysis reveals that a significant majority of students hold favorable attitudes toward the practice of code-switching in the English language classroom. Students perceive code-switching as a valuable resource that aids language learning, fosters a comfortable learning environment, and improves comprehension. These findings emphasize the importance of incorporating code-switching effectively into teaching methodologies to enhance student engagement, promote successful language acquisition, and create inclusive learning environments.

Students' opinion on how often code-switching should be used in English language classrooms

From the responses received, it is evident that a significant portion of the students expressed a positive inclination towards the use of code-switching. The majority of students (37.1%) indicated that code-switching should be used "Often," followed closely by 32.5% of students who believed it should be used "Always." Together, these two categories encompass almost 70% of the participants, indicating a considerable proportion of students who view code-switching as a regular or constant practice in the classroom. Furthermore, 27.9% of the students responded with "Sometimes," suggesting that they perceive code-switching as a moderately frequent occurrence. These students acknowledge the value of code-switching but may prefer it to be used selectively or situationally rather than consistently.

A smaller percentage of students (2.5%) responded with "Occasionally," implying that they believe code-switching should be used infrequently or only on rare occasions. This group of students likely prefers to predominantly use English without incorporating elements from other languages during classroom interactions. Interestingly, none of the students responded with "Never," indicating that all participants perceived at least some level of usefulness or relevance

in the practice of code-switching in the English language classroom. It is worth noting that the absence of a "Never" response suggests a general acceptance or recognition of the potential benefits that code-switching can bring to language learning.

Students Reason for Practicing Code-Switching in English Language Classroom

Analyzing the data regarding students reasons for employing code-switching in English language classrooms, several patterns and trends can be observed. One notable trend is that there is a consistent trend of higher percentages of students who code-switch often or always compared to those who never or occasionally code-switch across the majority of the given reasons. The most prevalent motive is seeking help from lecturers or friends. A significant majority of students (87%) stated that they often or always code-switch for this reason. This suggests that code-switching serves as a valuable tool for students to bridge communication barriers and effectively convey their questions or seek clarification.

Similarly, another significant finding is that code-switching is frequently used for explanation purposes. A substantial majority of students (86.5%) reported that they often or always code-switch when explaining, indicating that code-switching allows students to provide clearer and more comprehensive explanations by utilizing familiar terms and concepts from their native languages. Another notable pattern is the high percentage of students (84.8%) who indicated that they often or always code-switch as a strategy for maintaining conversational flow. Furthermore, another important finding that mirrors this is the significant proportion of students who reported often or always code-switching because not knowing the English language equivalent (84.2%)

Lastly, a substantial majority of students (82.5%) responded that they code-switch to put emphasis on their utterances, often or always. This finding indicates that students utilize code-switching as a linguistic tool to enhance the impact and clarity of their messages, emphasizing specific points or concepts during communication. In summary, the data reveals that students frequently employ code-switching in English language classrooms for various reasons. These findings emphasize the multifaceted nature of code-switching as a linguistic resource utilized by students to enhance their communication and learning experiences in the English language classroom.

Discussion

Lecturers generally endorse code-switching in ESL classrooms for its role in aiding language learning, fostering a supportive environment, and enhancing comprehension (Karakaya & Dikilitaş, 2020; Kohi & Lakshmi, 2020). However, skepticism exists among some educators, echoing concerns raised by Yao (2011) and observed preferences for the target language among trainee teachers (Şener & Korkut, 2017). This dichotomy reflects the complexity of instructional decision-making, influenced by various factors (De La Campa & Nassaji, 2009; Murga et al., 2018).

Despite differing views, data suggest code-switching benefits comprehension, fosters a supportive environment, and aids language acquisition. Students overwhelmingly support code-switching, finding it conducive to learning, boosting their sense of security, and enhancing comprehension (Al Tale & Alqahtani, 2020; Bateman, 2008; Hertel & Sunderman,

2009; Tajgozari, 2017), aligning with prior research (Galali & Cinkara, 2017; Tian & Hennebry, 2016). This student preference underscores the challenges of limiting L1 use in various activities (Boustani, 2019).

While lecturers may hold more neutral views, students strongly advocate for code-switching. This disparity underscores the importance of considering students' perspectives, given their positive outlook on code-switching and its impact on their learning experiences.

Lecturers code-switch in ESL classrooms for pedagogical and socio-communicative purposes, including instruction, class management, and fostering a positive atmosphere (Fauziati et al., 2020; Al-Musawi, 2014; Cahyani et al., 2016). Gulzar (2010) emphasizes code-switching's empathetic function and aiding comprehension. Students code-switch due to limited English proficiency, lack of translations, and socialization (Almoayidi, 2018; Taniş et al., 2020; Ali, 2020; Boustani, 2019). This facilitates bridging languages, reducing anxiety, and enhancing vocabulary acquisition.

Lecturers code-switch less frequently than students, prioritizing target language acquisition, while students, especially those less proficient, rely more on code-switching for communication and comprehension. Understanding these differences informs instructional practices, balancing language acquisition with effective communication and supporting diverse student needs to promote English proficiency.

While the study supports the positive impact of code-switching, it emphasizes the need to avoid overreliance. Code-switching should be viewed as a strategic tool, gradually reduced as learners progress in language proficiency. Educators should strike a balance between providing linguistic support and encouraging target language engagement.

There are promising avenues for future research on code-switching in ESL classrooms, including longitudinal studies, investigations into its impact on different language skills, exploration of specific contexts and learner populations, examination of digital tools' role, and understanding stakeholders' perspectives. Continued research will refine instructional practices and inform supportive language learning policies.

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EXPLORING STRATEGIES AND FACTORS INFLUENCING INFERENCE OF UNKNOWN WORDS: INSIGHTS FROM AN ELT LECTURER

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Abstract: *This study explores the word-meaning inferencing strategies used by non-native speakers to enhance their reading comprehension. Given the inconvenience of constantly consulting a dictionary, alternative strategies for inferring unknown words are essential. The study uses a semi-structured interview with an ESL lecturer to examine her views on the various lingual and non-lingual strategies that can be used to infer the meaning of unfamiliar words in L2. The interviewee also sheds light on several factors that affect word-meaning inferencing, including second language proficiency and text complexity. The findings suggest that multiple strategies can be employed to ensure accurate inferencing of unfamiliar words. This study provides an important contribution to the existing literature on word-meaning inferencing and emphasizes the need for further research in this area.*

Keywords: *Word-Meaning Inferencing, Reading Strategies, English as a Second Language, Vocabulary Development, Second Language Acquisition*

Introduction

Comprehending academic content is crucial for tertiary-level students, especially when faced with materials in a language other than their primary one, a common challenge in countries where English serves as the second language. English is the medium of instruction in numerous higher education institutions, driven by the demands of Information and Communication Technology (ICT) and globalization. In nations like Malaysia, where English proficiency is imperative for tertiary education, students often grapple with understanding unfamiliar terms, posing a significant hurdle to effective communication and academic success. This study aims to delve into the intricate relationship between vocabulary development and reading comprehension, with the ultimate goal of enhancing academic outcomes for non-native English speakers.

Literacy acquisition has been extensively explored, emphasizing the pivotal role of vocabulary development in bolstering reading comprehension. Scholars such as Bromley (2007), Nation (2001), and Wesche and Paribakht (2000) have underscored this connection. Nation (2001) estimates that an educated native English speaker is acquainted with around 20,000 word families, constituting a vocabulary of about 70,000 words. Over the past century, researchers have increasingly focused on vocabulary acquisition among second-language learners, recognizing it as a critical aspect of language learning (Gass & Selinker, 2008). An integral facet of this process involves inferring the meanings of unknown words while reading, a method acknowledged as the most effective means of expanding vocabulary (Nation, 2001).

Constantly referring to a dictionary while reading can be inconvenient and time-consuming, hindering effective comprehension. Knight's (1994) research indicates that relying on a dictionary can impede cognitive processes, leading to frequent re-reading and potential discouragement among students. Misunderstandings stemming from inadequate vocabulary can further complicate matters. Therefore, alternative reading and comprehension strategies, minimizing reliance on dictionaries, are crucial for efficient academic progress (Juliana, 2016).

Lexical inferencing, or word-meaning inference, involves deducing the meaning of unknown words using linguistic and contextual clues (Bengeleil & Paribakht, 2004; Zhaochun, 2013). Read (2000) describes lexical inferencing as evaluating the significance of unfamiliar words in the context of the overall text understanding. If a word is deemed inconsequential, it is often ignored; if not, learners employ various strategies to decipher the meaning. Despite its importance, many students struggle with effective inferencing, as noted by Kelly (1990).

In summary, this study aims to enhance the understanding of vocabulary development and reading comprehension mechanisms for non-native English speakers, addressing challenges faced in meaning inferencing. Identifying areas of contention in this process could serve as a valuable foundation for future research.

Literature Review

Strategies

In the realm of second language acquisition, research has highlighted the diverse strategies employed by learners to decipher unfamiliar words while reading. Baniabdelrahman and Al-shumaimeri (2014) identified seven strategies, including phonetic resemblance, similar spelling, partial word knowledge, contextual meaning from nearby sentences, overall passage meaning, recognizing the word's part of speech, and prior topic knowledge. Nassaji (2004) categorized these into identification, evaluation, and monitoring strategies, encompassing word repetition, section repetition, word analysis, word-form analogy, self-inquiry, and verification.

Wesche and Paribakht (2010) introduced a taxonomy distinguishing linguistic and non-linguistic clues. Linguistic clues were further classified into intra-lingual (word, sentence, and discourse level) and inter-lingual (lexical knowledge and word collocation). Zhaochun (2013) applied this taxonomy in a study on Chinese EFL students. Haastrup (2008) categorized strategies into contextual and linguistic cues, the latter divided into intralingual and interlingual. Hamada (2009) distinguished local (morphological, word-analogy, and syntactic) and global (contextual and world knowledge) strategies, while Kelly (1990) delineated formal and contextual guessing.

Ahour and Mohammady (2016) reported various lexical inferencing strategies, with local context, word association, and collocation as frequent choices. The least utilized was analyzing and morphological knowledge. Yousefi and Ahadzadeh (2017) reinforced the prominence of meaning-focused strategies, encompassing contextual clues, prior knowledge, and paraphrasing. The study recommended promoting prior knowledge application, textual clue

utilization, and awareness of parts of speech, discourse markers, synonyms, antonyms, and elaboration techniques. The most employed form-focused strategy was association.

Factors

Studies that reported on word-meaning inferencing strategies by second language learners, such as those above, were conducted for several different reasons with varying research aims. First of all, a large body of literature has focused on identifying the factors that influence the success of inferencing unknown words while reading texts in a second language, such as context characteristics (Carnine, Kameenui, & Coyle, 1984; Frantzen, 2003), gender (Baniabdelrahman & Al-shumaimeri, 2014), grammatical knowledge (Kaivanpanah & Alavi, 2008), knowledge sources (Matsumura, 2010; Paribakht & Bengelil, 2004), learners behaviour (Frantzen, 2003), learners perceptual learning style preferences (Shen, 2010), second language proficiency level (Baniabdelrahman & Al-shumaimeri, 2014; Kaivanpanah & Alavi, 2008), reading proficiency in second language (Kaivanpanah & Moghaddam, 2012; Paribakht & Bengelil, 2004; Prior, Goldina, Shany, Geva, & Katzir, 2014), text characteristics (Kaivanpanah & Alavi, 2008), time (Hamada, 2009), topic familiarity (Pulido, 2007), passage sight vocabulary (Pulido, 2007) and depth of vocabulary knowledge (Nassaji, 2004; Prior et al., 2014).

Hamada's (2009) small-scale study involving Japanese undergraduates investigated changes in inferencing strategies over time. Despite limitations such as a solely think-aloud data collection method and a small sample size, the study indicated minimal alterations in strategy use and success rates, except for one participant. Frantzen's (2003) research focused on context characteristics and student behavior, with results suggesting that contextual cues did not significantly aid inferencing, and inattentiveness to textual details led to incorrect inferences. In contrast, Carnine et al.'s (1984) study demonstrated higher scores in word-meaning inferencing when words were presented in context compared to isolation, emphasizing the influence of context. Besides, examining the context, the author also studied the relationship between learners' age with the ability to infer meaning where the older students scored better compared to the younger ones. The contradictory results might be attributed to differences in sample characteristics and the language being tested.

Baniabdelrahman and Al-shumaimeri (2014) explored the relationship between students' characteristics and inferencing ability, specifically gender. The study reported that more male students successfully inferred unfamiliar word meanings, and language proficiency positively correlated with success rates. Kaivanpanah and Alavi's (2008) comprehensive research delved into language proficiency and grammar knowledge. Findings aligned with Baniabdelrahman and Al-shumaimeri (2014), revealing lower proficiency hindering inferencing success. Additionally, better grammatical knowledge facilitated the use of contextual cues.

Examining reading proficiency, Kaivanpanah and Moghaddam (2012) found that more proficient readers performed better in inferencing. This was supported by Bengelil and Paribakht (2004), whose study on Arabic-speaking medical students showed high reading proficiency correlating with successful inferencing. Nassaji (2003) investigated knowledge sources, revealing varying effects on success rates. General knowledge was frequently utilized, while grammar knowledge had the least impact. Vocabulary knowledge's impact on

inferencing success was studied by Prior et al. (2014) and Nassaji (2004). Interestingly, while Prior et al. found no effect, Nassaji observed a significant correlation with depth of vocabulary knowledge.

Pulido (2007) explored 'passage sight vocabulary' and topic familiarity, reporting positive effects on inferencing success. Shen's (2010) unique study on perceptual learning style preferences found no significant differences in success rates based on learners' cognitive, affective, psychological, or perceptual traits. The researcher believed that this is likely due to the homogeneity of the participants in terms of culture, educational background and reading habits.

Success Rate

The second area that has a considerable amount of literature on this issue was the type of word-meaning inferencing strategies used by second language learners and their relation to success rate. In a study conducted by Nassaji (2003), second language learners were found to use strategies like repeating, verifying, monitoring, self-inquiry, analysing and analog. The result showed that the most frequently used strategy was repeating. However, the most successful one that enabled them to infer meaning correctly was self-inquiry. In another research by Baniabdelrahman and Al-shumaimeri (2014), second language learners who were studying at a Saudi university showed a low ability to use the right strategies in guessing the meaning of unfamiliar words. Furthermore, only a few students attempted to use a combination of two or more strategies which resulted in a slightly better correct guessing rate. Contrary to the unsuccessful inferencing of the meaning of unknown words in the previous research, the participants in Matsumura (2010) study were relatively successful. This inconsistency in results could probably be because of different participants' backgrounds such as their first language, field of education, second language proficiency level and etc.

In sum, the skill of deriving meaning from context is widely acknowledged as a crucial component of reading comprehension, but there are certain aspects of this skill that have not been extensively documented in academic literature, particularly in relation to determining the most effective strategies for doing so (Baniabdelrahman & Al-shumaimeri, 2014). Methodological differences used in the studies influence the result and further make it hard to generalise. Given its importance, conducting a research in an attempt to offer new insights and potential solutions seems justifiable. Thus, this small-scale qualitative research is carried out to investigate the perception of word-meaning inferencing by interviewing an English lecturer who is teaching second language learners at a polytechnic in Malaysia. One of the skills taught by the lecturer was reading, which encompassed skills to determine the meanings of unfamiliar words in the English language. This would be a good starting point in exploring an in-depth understanding of this issue in order to answer the questions raised at the beginning of this paper.

Hence, this study aimed to analyse and synthesize relevant research papers with the views of the interviewee to explore more in-depth word-meaning inferencing of unfamiliar words in L2. Two specific research questions are:

1. What is the perception of the interviewee on different strategies for word-meaning inferencing of unfamiliar words in L2?

2. What is the perception of the interviewee on the factors influencing the ability to inference meaning successfully?

Methodology

Interviewee's background

An interview was conducted with a lecturer at Politeknik Tuanku Sultanah Bahiyah (PTSB), Kulim, Malaysia, with over ten years of experience teaching English to diploma students. Her expertise extends across various English courses at PTSB, encompassing English for Commercial Purposes, English for Technical Purposes, Communicative English, and the Malaysian University English Test (MUET). Additionally, she serves as the faculty advisor for the PTSB debate club, guiding students in English language skills.

Hailing from Kelantan, Malaysia, where English proficiency is low and considered a foreign language, the interviewee had limited exposure to English outside formal education. Her social interactions, both within and outside school, rarely involved English. Despite primarily using Malay with her family and consuming Malay media, her passion for English led her to pursue TESL after school. In her primary and secondary education, English was taught as a subject in Malay-medium schools. Her first English-medium experience occurred during tertiary studies, where she pursued a TESL degree. This presented both a challenge and an opportunity for her to learn and use various strategies to master as well as to teach the language to non-native speakers.

Instrument

In this study, a semi-structured interview was employed as the instrument for data collection. This type was chosen because it allows the researcher to lead the interview in a structured way, while still allowing the participant to provide relevant information that may not have been anticipated by the researcher (Dawson, 2002; Hatch, 2002). To collect the required data, a list of basic open-ended questions was designed to obtain specific information from the participant, as recommended by Fraenkel and Wallen (2009). As Hatch (2002) argued, open-ended questions allow participants to elaborate on their responses and provide more in-depth information. The pre-determined open-ended questions serve as the structured component of the interview, which allows the interviewer and the participant to maintain focus on the topic of discussion (Seidman, 2006). However, the interview is also designed to be flexible, allowing for other important information to arise during the course of the interview. Probes were created for areas that arose during the interview interaction by asking additional questions that were not anticipated, to expand on the participant's answer based on leads from the participant (Hatch, 2002). To ensure that the researcher has an accurate record of the interview, the interview was audio-recorded and transcribed for data analysis which is important for research validity.

Data Analysis

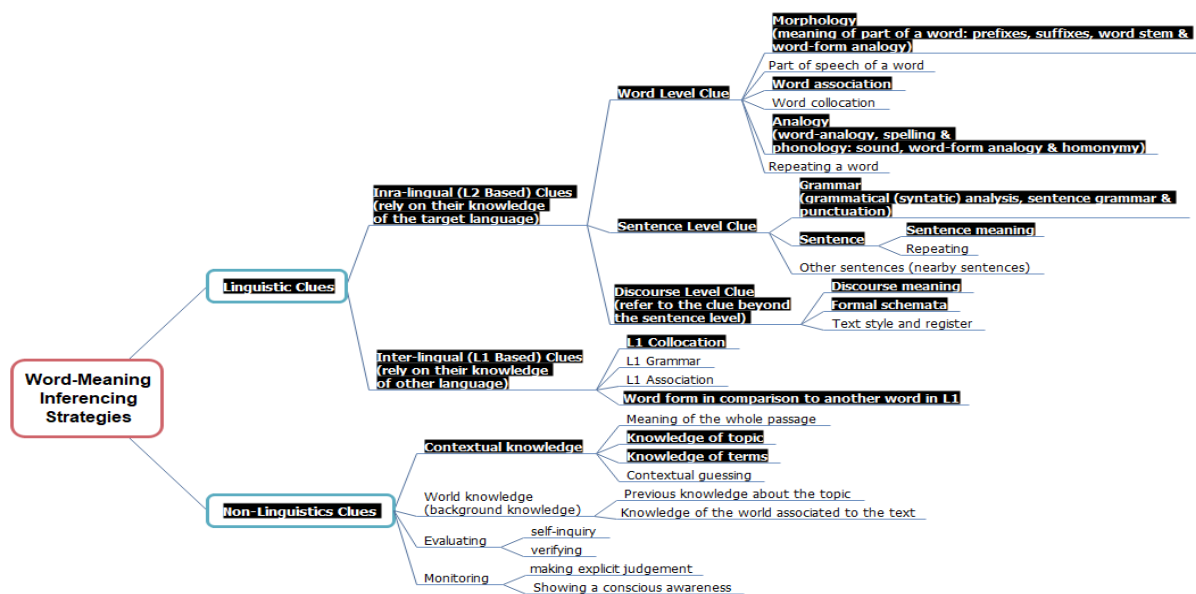
In this qualitative research study, the researcher used Wesche and Paribakht (2010) taxonomy as the basis for analysing and reporting the data in the result chapter, with some modifications to better reflect the strategies used to infer the meaning of unknown words. After reviewing the literature on this topic, several additional strategies were identified that were not included in the original taxonomy, such as part of speech of a word, repeating a word, clues from nearby sentences, grammar of L1 and world knowledge.

These strategies were added to the original taxonomy to provide a more comprehensive framework for our data analysis, and to ensure that the researcher is able to capture all of the strategies used by participants in our study. The modified taxonomy consists of four categories under the non-lingual clues, including the original categories from Wesche and Paribakht (2010) and the additional categories that were added based on the researcher's review of the literature. The researcher believes that these modifications will enhance the validity and reliability of our findings, by allowing us to more accurately capture the strategies used by participants to infer the meaning of unknown words.

As shown in diagram 1, the strategies were classified into two principal categories, namely linguistic and non-linguistic. The former refers to any strategy that involves the use of language, such as vocabulary expansion or the use of syntax to decipher the meaning of an unfamiliar word. On the other hand, non-linguistic strategies refer to any strategy that does not involve language, such as guessing the meaning using contextual knowledge or world knowledge.

The linguistic strategy can be further categorized into two distinct subcategories, namely intra-lingual strategy and inter-lingual strategy. Intra-lingual strategies involve using clues such as words, sentences and the grammatical structure of the target language to determine the meaning of unfamiliar words. This technique is particularly useful for language learners who have a strong foundation in the target language, as it allows them to rely on their knowledge of the language to decipher the meaning of words.

Inter-lingual strategies, on the other hand, rely on cues from other languages to infer the meaning of unfamiliar words in the target language. This approach involves using knowledge of the reader's first language, or any other language they may be familiar with, to draw connections and parallels with the target language. Inter-lingual strategies can be especially helpful for language learners who are just starting out, as they provide a familiar context in which to understand the target language.



Note: The original categories from Wesche and Paribakht (2010) are highlighted in black

Diagram 1: Word-Meaning Inferencing Strategies

Result

Interviewee's perception of various word-meaning inferencing strategies

In answering the first research question, the interviewee shared a number of the strategies that she utilized as well as that she taught students.

Linguistic Strategy (Intra-lingual Strategy: Word level)

Upon examining the word-level strategies used by the participant, it was found that she mentioned two out of the six strategies found in the literature section of this study. The first strategy, morphology analysis, was mentioned by the participant by providing examples of prefixes such as 'dis', 'de', and 'un' given. The participant explained that these prefixes provide an indication that the target word has a negative or opposite meaning to the root word (lines 157-160). This strategy is consistent with the findings of several previous studies, including those conducted by Ahour and Mohammady (2016), Baniabdelrahman and Al-shumaimeri (2014), Haastrup (2008), Nassaji (2003), Wesche and Paribakht (2010) and Zhaochun (2013), who also observed that the stem and suffix of the target word can provide clues for meaning inference. This practical technique enables readers to guess the meaning of a word easily by understanding part of the word.

The second word-level strategy that was discussed is the phonology of the word. This technique involves recognizing the sound pattern of a word and linking it to a similar-sounding word whose meaning is already known. As supported by previous research conducted by Baniabdelrahman and Al-shumaimeri (2014), Nassaji (2003), Wesche and Paribakht (2010) and Zhaochun (2013), the participant explained that readers could identify the meaning of an unfamiliar word by identifying its similarity in sound with a word they already know (line 135 – 140). The participant did, however, express her view that relying solely on this technique

could be challenging (line 139). It is possible that without the support of other clues, relying on this strategy alone may lead to an erroneous interpretation of the word's meaning.

Linguistic Strategy (Intra-lingual Strategy: Sentence Level)

During the interview, the participant shared several sentence-level strategies for inferring the meaning of unfamiliar words. First, she emphasized that examining the nearby sentences of the unfamiliar word is the most effective strategy. According to her, one can easily deduce the meaning of an unfamiliar word by analyzing the flow of ideas in the sentences that precede and follow the target word. She further explained that texts are typically structured in an organized way, with sentences strung together to aid readers in comprehension (lines 65-71 and 107-115). This perspective is supported by Baniabdelrahman and Al-shumaimeri (2014), who found that this strategy had the highest number of correctly guessed meanings compared to seven other strategies tested among two hundred and forty first-year EFL students at a university in Saudi Arabia.

The second strategy she highlighted was the importance of analysing the grammar of the sentence in which the target word appears. She used the part of speech as an example to illustrate this technique, stating that by identifying the part of speech of the words before or after the target word, the part of speech of the unfamiliar word can be determined, thereby aiding in the interpretation of its meaning (lines 86-96). This approach is supported by the findings of Hamada (2009), Wesche and Paribakht (2010) and Zhaochun (2013), who also identified grammatical analysis as a viable strategy for word meaning inference. They explained that any syntactic properties, including part of speech (as mentioned by the interviewee), word order constraints, and knowledge of punctuation rules, fall under this category.

The interviewee expressed her view that repeating a portion of the text, which is a strategy that falls under both word and sentence-level strategies, would not be useful in inferring meaning. She further stated that she had not come across such a strategy before (lines 192 – 194). In contrast to her view, a study conducted by Nassaji (2003) found that repeating any part of the text, such as the word, phrase or sentence in which the target word occurred, could provide readers with some clues to infer meaning. Nassaji's study showed that this strategy accounted for about two-thirds of the strategies used by twenty-one adult ESL learners with different language backgrounds. By repeating a word or certain parts of the sentence, readers could potentially aid in remembering something that has been previously read or heard, which in turn can help them infer meaning.

Linguistic Strategy (Intra-lingual Strategy: Discourse level)

When questioned about the absence of discourse-level strategies in her list of techniques, the interviewee responded by stating that such strategies are not commonly used and can be challenging to employ. She also remarked that only proficient readers are likely to consider or capable of utilizing the discourse-level strategies. Additionally, she noted that many readers, particularly those who are non-native speakers of English, may not be unaware of the existence of these strategies and are unlikely to opt for them when simpler methods are available (lines 172 – 185). This viewpoint is not surprising, as only two of the researchers, Wesche and

Paribakht (2010) and Zhaochun (2013), identified that clues such as text type, text style, and register could aid in deducing meaning. Although readers may not be familiar with the concept of discourse-level strategies, they may unwittingly draw their knowledge of discourse structures and conventions to understand texts. It is therefore important to recognize the potential benefits of discourse-level strategies and to provide explicit instruction to readers, particularly those who are not native speakers of English, on how to use them effectively.

Linguistic Strategy (Inter-lingual Strategy)

In relation to inter-lingual strategies, the interviewee stated that the use of L1 grammar may not necessarily help in the process of inferring meaning for an unfamiliar L2 word. According to her, the reason for this is that the Malay language has certain differences in grammar as compared to English. For example, Malay does not possess adverbs and the word order in Malay may vary from English. As explained in lines 149-153, the participant highlighted the placement of adjectives in Malay language, which is after the noun, in contrast to English. Nonetheless, the participant did not dismiss the possibility of using L1 grammar as a strategy. Zhaochun (2013) similarly identified the use of L1 grammar as a possible strategy, though the findings indicated that it was not commonly utilized by EFL students at a Chinese university, in comparison to other strategies.

Another inter-lingual strategy mentioned by the interviewee is the similarity in the word form between L1 and L2. This means that readers could infer meaning by recognizing the resemblance between a word in L2 and another word in their L1. This finding is consistent with previous research conducted by Kelly (1990). The interviewee explained that this is possible in the context of Malay and English languages because Malay has borrowed many words from English (lines 125 – 136). As a result, these borrowed English words not only have a similar form but also a similar sound to their English counterparts. Some examples of such words are "integrasi" (integration), "kolaborasi" (collaboration), "kaunter" (counter), and "garaj" (garage).

Non-Linguistic Strategy

With regard to non-linguistic strategies, the interviewee suggested that readers may infer the meaning of an unfamiliar word by comprehending the entire passage or context (lines 82-85). Almost every research cited in the literature review recognized this method. It is worth noting that the clue to infer meaning may not necessarily be located near the target word; the title, for example, can also serve as a trigger for meaning. Thus, comprehensive comprehension of the entire passage is imperative in the process of word-meaning inferencing.

Besides understanding the text, Hamada (2009) emphasized the usefulness of "world knowledge," which refers to knowledge beyond the immediate context, in inferring meaning. This could include the reader's prior knowledge, personal experiences, cultural background, and so on. Such knowledge can help the reader make connections between the text and their own experiences, enabling them to fill in the gaps and make more accurate assumptions about the meaning of unfamiliar words.

In conclusion, the interviewee emphasized that utilizing multiple strategies is crucial for accurate word-meaning inferencing (lines 141-142). Relying solely on a single strategy may not always yield the most precise interpretation of the word. This echoes the findings of several studies in the literature review that have argued for the use of multiple strategies for successful word-meaning inferencing. For instance, this view is supported by the results of a study conducted by Nassaji (2003) which found that students who used more than one strategy achieved a slightly better success rate compared to those who used only one strategy. Therefore, it is recommended to use a variety of strategies to increase the likelihood of comprehending the intended meaning of an unfamiliar word.

Interviewee's perception of factors influencing the ability to a successful word-meaning inferencing

The second research question pertains to the factors that influence one's ability to infer meaning. The interviewee highlighted that a good level of proficiency in the second language (L2) and a deep understanding of vocabulary (as noted in lines 202-203 and 221-222, respectively) are crucial in determining one's ability to infer meaning. This former claim aligns with the findings by Bengelil and Paribakht (2004), Kaivanpanah and Moghaddam (2012) and Prior et al. (2014). Whereas, findings from research by Nassaji (2003) and Prior et al. (2014) supported the latter. These findings imply that learners with a higher level of L2 proficiency and a richer vocabulary are better equipped to infer meaning, as they possess a wider range of linguistic resources to draw upon.

Furthermore, the interviewee noted that text characteristics play a significant role in influencing the ability to infer meaning. She asserted that the complexity of the text has a direct impact on the ease with which readers can infer meaning. She added that a text is considered more complicated if it contains a higher number of unfamiliar words (line 138).

In addition to this, the participant emphasized that familiarity with the topic of a text can help readers to more easily infer the meaning of unfamiliar words (lines 132 – 137). These assertions align with research conducted by Kaivanpanah and Alavi (2008) and Pulido (2007), respectively. Besides the unfamiliar words, in their study, Kaivanpanah and Alavi (2008) found that a text is considered less complicated when it contains shorter sentences, explicit markers, fewer adjectives and adverbs, and present-tense verbs. A complicated text can demotivate readers and hinder their ability to infer meaning, as supported by the results of Frantzen's study.

Finally, the interviewee's opinion regarding the influence of gender on the ability to infer meaning was that it is not a significant factor, and that anyone with good proficiency in L2 would be able to infer meaning more easily (lines 218-226). However, a study by Baniabdelrahman and Al-shumaimeri (2014) contradicts the interviewee's statement. Their research found that male students scored better than female students in meaning inferencing among first-year EFL students at a university in Arab Saudi. One possible explanation for this discrepancy could be the difference in contexts between the two. It is important to note that the interviewee's opinion is based on their personal experience and perception, whereas Baniabdelrahman and Al-shumaimeri's research was conducted on a larger sample size in a specific cultural and linguistic context. Therefore, more research is needed to fully understand the role of gender in the ability to infer meaning in L2 learning.

Discussion

Proficiently inferring unknown word meanings, sans a dictionary, is vital for effective reading comprehension, leveraging prior knowledge and context. This skill is crucial for navigating intricate texts containing unfamiliar terms and references, ensuring continuous learning independent of external aids. The interview in this study proved invaluable, unveiling insights into word-meaning inferencing by connecting the interviewee's responses with cited literature findings. Thorough analysis identified specific patterns and strategies in word-meaning inferencing.

The interviewee shared linguistic and non-linguistic strategies for inferring unfamiliar English vocabulary, with a predominant focus on linguistic cues. This emphasis may stem from extensive research on linguistic strategies compared to non-linguistic ones. The participant's inclination toward intra-lingual strategies, grounded in target language knowledge, over inter-lingual ones aligns with her role as an ELT lecturer. While acknowledging the use of her first language, the interviewee relies on intra-lingual strategies, emphasizing word form similarity.

Notably, the interviewee shared almost half of the strategies from the literature review, showcasing her expertise. Delving into these strategies illuminated the cognitive processes in vocabulary inferencing for someone of her background. The study identified four prominent factors influencing word-meaning inferencing: second language proficiency, text characteristics, topic familiarity, and vocabulary depth. A disagreement with a gender-related study suggests diverse perspectives, possibly influenced by personal values, cultural background, or experiences.

This nuanced understanding informs more effective language and literacy skill teaching methods, potentially enhancing academic and professional outcomes. Despite limitations tied to qualitative research, the findings contribute to existing literature, guiding future research and policy decisions. Continuous exploration is crucial for a comprehensive understanding and effective approach to word-meaning inferencing.

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THE TRAINING AND RETRAINING NEEDS OF MALAYSIA'S TVET EDUCATORS

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Abstract: Malaysia has established numerous technical and vocational training institutions to meet these needs. In Malaysia, there are currently about 1,000 TVET institutions, of which 506 are public. During the five-year plan, this number is expected to rise. Though theoretic discussion is still ongoing, the prevailing consensus is that curriculum should be viewed as a comprehensive teaching plan. It includes a summary of the goals and objectives of the content in terms of theoretical knowledge, requisite practical skills, work attitude, and supporting resources to be used during the presentation. Educators who are experts in their fields are the main source of high-quality TVET at the tertiary level. Although many of the employed educators had the requisite technical abilities, they were not afforded the opportunity to pursue professional training. There is a lack of competent technical and vocational educators in Malaysian TVET. The majority of educators are hired straight out of college or university based only on their academic credentials; they typically lack industrial work experience. However, because of the unappealing compensation package, experienced professionals who are competent are unwilling to become educators. This essay reviews the composition and effectiveness of Malaysian TVET educators. It entails curriculum creation, program design, learning material type, and stakeholder participation. Retraining is the process of learning a new skill or improving an old one. The TVET educators' performance is crucial in determining which This article discusses curricular relevancy, teaching staff resistance tactics, and challenges related to training and retraining needs. Enhancing the calibre of technical and vocational education is linked to improving the calibre of TVET educators.

Keywords: TVET, Training, Retraining, Educators

Introduction

Educators at higher education institutions are tasked with much more than just getting students ready for the workforce. The quality of educators is receiving a lot of attention from the media, politicians, and scholars. There have been heated discussions concerning educators, which have led to many policy decisions at the local, state, and federal levels. It is not an easy undertaking, though, to improve educator preparation and quality. Universities and educator training

facilities in Malaysia provided training for educators. A small number of universities and educator training centres offered TVET educators courses that may meet the requirements of higher education institutions. One of the training facilities for educators in the 1990s was a specialized training centre for Technical and Vocational Education (TVET) instructors. In terms of the requirements of technical institution, a few universities offer courses for technical instructors. All of the graduates, whether from universities or educator training programs, are qualified to work as educators at Malaysia's technical and vocational schools. This study discusses whether the instruction they received will result in the highest TVET performance in Malaysia's educational system. Other aspects that educators should be aware of and work to improve include curriculum development, program design, the type of learning materials used, and stakeholder involvement. Educators with five, ten, or more years of experience in the classroom require retraining to make their knowledge relevant to current market demands. Do you prefer vocational or general education? In many developing nations, this is a "tough choice" (Yang, 2023). According to McGirk et al. (2015), general education produces "general human capital," whereas vocational and technical education produces "specific human capital." Since the former can be transferred from job to job and throughout one's life, many people support general education as being more appropriate for a flexible labour force that can change tasks and even the type of work. However, the latter option has an advantage in that it instills specific job-relevant skills, which can increase a worker's suitability for a particular job and therefore increase productivity. Because of this, both are significant, and other countries' educational systems incorporate both general and vocational education in different ratios

TVET Educators' Training

In TVET, the primary function of educator training is to impart the necessary skills. Training deals with training people who already have a career or who are going to start one, and it focuses on imparting knowledge and abilities that may be applied right away or very soon (Herrity, 2023). In summary, vocational education and training is a learning activity that can lead to effective economic performance and observable economic and social rewards, according to Mensa et al. (2023). Their emphasis on measurable results and responsibility sets them apart from other vocational and educational programs. As previously mentioned, a small number of universities and educator training facilities in Malaysia provided training for educators. Technical Educator's Training College was one of the training facilities that offered vocational courses to Malaysian vocational schools in the 1980s and 1990s. The courses include Automotive, Electric & Electronics, Building Constructions, and Welding. Every trainee ought to finish their training in between 1.5 and 3 years, depending on the circumstances based on their fundamental credentials. To gain knowledge and abilities in their fields, they should spend six months in industrial training during the training period. The benefit of this experience, which we might refer to as situated learning in a specific context like the workplace, is that learning takes place in an environment where the issues that need to be resolved are actual or current. They were situated in particular industry, under the supervision of the relevant authority. To ensure that trainees would abide by college and industry regulations, lecturers will visit the trainees two or three times to observe. This program taught the trainees a number of things. They will be more prepared when they become educators in the near future with their additional knowledge and abilities. Upon completion of their college training, students will be granted a teaching license along with a diploma and certificate. However, with certain changes to government policy and other enhancements, there are now

more high-quality educators, particularly in TVET. The emphasis in producing educators is primarily on technical fields rather than ones that require competence. TVET educators can pursue their degree programs at universities. After completing their studies, they will graduate and enrol in further courses, but they will work as technical or vocational educators in academic or technical institutions. Educators who have graduated from training institutions tend to focus more on their talents than the other form of training. Educators from colleges have greater expertise in science and technology. Parents in Malaysia primarily choose to send their children to technical and vocational schools, therefore what all educators need is retraining that may improve their quality, curriculum content, and approach to teaching and learning.

Curriculum Creation for Education

A far more thorough and intricate description of the learning process than is feasible with plans, learning content, or learning material can be found in the term curriculum, which stands for educational path. These days, curriculum development is more focused on the trainee or student and the learning process than it is on the subject matter being studied. On the other hand, a curriculum offers details on the following areas of learning:

- Who is the educational process intended for?
- What credentials and objectives are to be met?
- What subjects need to be studied?
- What instructional strategies and tools should be applied?
- How will the test result be determined?

The degree to which a training system that relies on a carefully crafted curriculum is effective must be gauged by:

- It can draw the younger generation into the future of work and provide them with the skills that businesses need.
- In addition to imparting technical knowledge (technical skills), it can teach students how to overcome obstacles and get ready for lifelong learning.
- It allows access to everybody without the limitations of entry requirements and can equip people with the fundamental skills necessary to transition from one career or field of work to another after they have entered the workforce.

TVET Educators' Retraining

Why is retraining necessary? Retraining is the process of learning a new skill or improving an old one. Accelerating your work and enrolling in programs at other TVET centres or institutions are two ways to upgrade your skills. The effectiveness of TVET educators is crucial in determining whether parents in Malaysia opt to send their children to Technical Higher Institutions and pursue careers in TVET. Educators should retrain to enhance their effectiveness and knowledge, particularly to engage students more in the teaching and learning process. Depending on the demands, they may receive retraining for a short or extended time. Figure 1 explains the requirement for retraining.

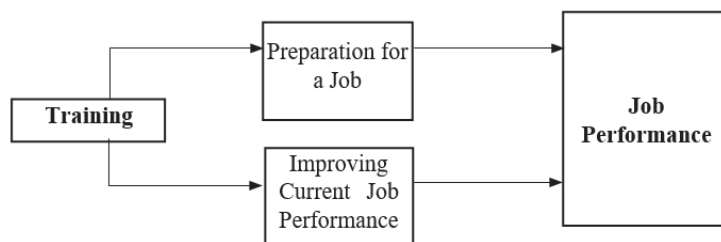


Figure 1: Short-term training

In Malaysia, TVET educators would require retraining as a result of the 2006 introduction of new assessments for vocational students. The use of a modular system and competency-based education is the new method to assessment for vocational students. Returning to the original goals of vocational education, these were to provide students with possibilities to pursue higher education, clear professional trajectories, and job-oriented instruction. As stated by Yusof Harun (2018), the difficulties in this situation include retraining educators to teach any vocational subject, enlisting the help of industry mentors to help the department train students who are appropriately skilled for the workplace, nurturing multiskill students, and obtaining international accreditation for the courses offered. This essay will address and evaluate the component of TVET instructors' retraining needs with regard to curriculum development, program design, the type of learning resources used, and stakeholder involvement.

Design of Retraining Programs

The curriculum ought to be created with adult learners in mind. The characteristics of training are similar to those of learning, which will help people become competent and knowledgeable in the field. Educators taking part in this program will adjust to a lifetime of learning throughout their careers. The companies and industries involved in the program's creation should be consulted during its design. When creating a training program, precise results are needed to demonstrate the necessary competencies. Competency is the capacity to carry out activities in accordance with predetermined standards of behaviour, knowledge, abilities, and attitudes. It is quantifiable, observable, and realistic. If given the right instructions, direction, teachings, opportunity, and time, everyone can become competent. In order to create retraining courses for educators, the training needs analysis should be identified, taking into account a job or skills analysis. This study will make it possible to determine what is expected of those who are performing.

Through these programs, vocational instructors can receive certification from training organizations for their acquisition of nationally and internationally recognized competencies. It will include foreign agencies' acknowledgment of competency-based education and training and the Skills Development Department's accreditation of educators' skills. The collaboration of several industries will enhance the expertise and abilities of educators. Educators will acquire the newest information and technology in the sectors if they attend the training within a specific time frame. This unique curriculum aims to provide participants with exposure to real-world work environments, knowledge of workshop management, exposure to machinery repair, and hands-on teamwork exercises similar to those seen in industrial settings. All of these

elements will advance knowledge and let instructors know what has occurred in the industry, which will facilitate the transfer of knowledge to their students.

Instructional Approach and Resources

More learners are being impacted by the shifting pedagogy. Educators should plan and execute innovative approaches to teaching and learning in the classroom or workshop. Educators continue to employ the conventional approach because they were not introduced to the newest teaching philosophies, particularly for seasoned educators. These days, teaching can be done with a variety of methods and resources. Work-based learning, project-based learning, blended learning, and problem-based learning (PBL) are examples of appropriate methods in vocational education. In addition to the assigned text books, students have access to a variety of resources via the internet and discussions.

i. Learning Based on Problems (PBL)

According to Ghani et al. (2021), PBL can assist students in improving their problem-solving skills. Students are encouraged to collaborate while working through challenges; they also acquire important life skills and develop into self-directed learners.

ii. Education Based on Work

Job-based learning is a technique used by schools and colleges to place students in industrial job settings so they can learn skills in a professional context. Action learning is a work-based experimental approach that business schools and corporations have adopted as a substitute for traditional classroom training. Educators ought to be able to use this strategy to get students ready for real-world experiences in the workplace. The knowledge and abilities pertinent to a profession that include fundamental components of labour as determined by real work are the method's features.

iii. Project-based education

A very different perspective on the relationship between being a worker and a learner, as well as between working and learning, is provided by project-based learning. Instructors will assign homework that requires students to apply what they have learned in the past to solve problems in the "real" workplace and integrate that knowledge. It will provide students greater exposure to the working world and help them understand the types of things that actual workers do.

iv. Blended education

Our perceptions of education and educational options are changing as a result of globalization and technology. There are a lot of new learning opportunities because to technology. There are many technologies available today, including teleconferencing, the Internet, computer assisted learning (CAL), web-based distance learning (WBDL), and online learning. As a result, they contributed to the coining of the term "blended learning" (BL), which has become more well-known in the training and education sector despite still needing further definition. BL is evolving quickly, but it is no longer a fad; instead, it is growing and becoming established.

Participants' Involvement

Other stakeholders must participate in order to raise the standard of vocational education. Industry and parents should be aware of their responsibilities to improve vocational education. The program designed to prepare educators with an industry attachment will help shape the future requirements for TVET educators. In order to help the department, teach students with skills appropriate for the workplace, the industries will serve as mentors. Educators may be highly qualified professionals with necessary skills in vocational education. Educators' qualifications are enhanced by the integration of real theoretical knowledge and hands-on experience related to the vocational subject they instruct.

Conclusion

It is crucial to provide training and retraining to cultivate creative TVET educators. implementation of flexible yet cogent educator training programs at various levels, taking into account the high expectations of educators. As a component of lifetime professional development, Malaysia should use the new National TVET-Educator Qualification Standards as the benchmarks for evaluating applicants for admission to or discharge from particular educator-training programs. Creating these criteria need to be the first step toward updating the current system of educator preparation. There should be more vocational educators' skills accreditation programs that work with the Ministry of Human Resources' Skills Development Department. Educators must enrol in short-term courses to enhance their skills in order to overcome a shortage of training.

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VIEWS ON THE DEVELOPMENT OF THE INDONESIAN HALAL INDUSTRY AMONG THE MANY GLOBAL INDUSTRIAL COMPETITIONS

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Abstract: *Sharia economic activists need to talk about this critical issue of the globalisation of the halal economy. This is due to the fact that halal has become a universally accepted norm in addition to satisfying Muslims' requirements and ensuring their adherence to sharia. The purpose of this study was to present a thorough picture of Indonesia's standing in the halal sector. The outcomes of this study can serve as a foundation for developing policies that assist the government and other relevant parties in advancing Indonesia's halal sector. In this descriptive study, phenomenological and normative theological methods were applied. Books, journals, articles, papers, and a variety of other scientific sources are the secondary data sources used in this study. The study's findings demonstrate that the Indonesian halal industry has a substantial impact on sharia finance, Muslim fashion, cosmetics, pharmaceuticals, travel, lodging, tourism, media, and film recreation in addition to the food and beverage industry. Indonesia, in addition to having the largest Muslim population in the world, has a high level of consumption, which has enormous opportunity for the development of the halal business.*

Keywords: *Potential, Development, Industry, Halal, Indonesia*

Introduction

1.1 Background

Sharia economic advocates need to take global halal trends into account. In addition to satisfying Muslims' dietary requirements and ensuring their adherence to sharia, halal has gained international recognition. The global Muslim population growth has an effect on the market for halal goods as well. In 2019, the value of halal products consumed worldwide surpassed 2.2 trillion dollars, with an annual growth rate of 5.2 percent (KNKS, 2020).

Public knowledge of halal products is still growing in Indonesia. This is demonstrated by the fact that 10,643 business actors in 2022—up from 8,333 business actors in 2021—demanded halal certification (Ulya, 2022). Talk of Indonesia becoming into a global hub for the halal industry started to surface as sharia economics became a significant global issue. The federal government is beginning to give this subject more thought as evidenced by the policies, stances, and functions that province governments have established to promote the halal sector. In addition to being a new lifestyle trend, the government needs to launch halal businesses and goods and be able to act as a catalyst for the development of a globally competitive halal product market.

Hafiz Zulfakara et al. (2014) state that the halal industry's development is currently a top priority in every nation that is growing economically. Countries who are not Muslim as well as Muslim are highly interested in seeing the halal business grow along the whole halal supply chain. Brazil, Argentina, Australia, New Zealand, and Singapore—the nations with the highest Global Islamic Economy Indicator (GIEI) scores in the halal food industry—were able to capitalise on this momentum in 2017–2018 (Nasution, 2020). With 237.53 million Muslims, or 86.9% of 273.32 million people, Indonesia is the nation with the biggest Muslim population in the world (Ministry of Home Affairs, 2022). Based on Mubarak and Imam in Nasution (2020), Indonesia is the world's largest halal consumer nation.

In addition to the quantity of research that is still lacking in light of the above description, it is critical to understand the state of the Indonesian halal business in order to develop precise and effective strategies. The government, corporate actors, stakeholders, and all stakeholders can address the gaps in the development of Indonesia's halal industry towards global halal by performing this research, which also discusses the spectrum, possibilities, and potential. In-depth research on the halal industry is crucial to support Indonesia's advancement in the halal sector, as the world's largest Muslim nation has not been able to capitalise on this momentum.

1.2 Problem Formulation

Even though Indonesia has great potential to become a key player in the global halal industry, the challenges and competition facing the Indonesian halal industry are increasingly complex. Along with the adoption of technology, international standards, and changes in consumer preferences, what is the view of the development of the Indonesian halal industry amidst global industrial competition.

1.3 Research Objectives

The aim of this journal is to analyze the development of the halal industry in Indonesia in the context of global competition. The focus is to identify key factors that influence the growth of the halal industry in Indonesia, the challenges faced, as well as strategic efforts that can be made to strengthen Indonesia's position in the global halal industry market.

1.4 Benefits of Research

This research is expected to provide an in-depth understanding of the status, potential and challenges of the halal industry in Indonesia. It is hoped that the results of this analysis can serve as a guide for the government, industry players and other stakeholders to develop appropriate strategies to optimize Indonesia's contribution to the global halal industrial market.

1.5 Scope of Research

This study will explore key aspects related to the halal industry in Indonesia, including regulation, innovation, marketing, infrastructure and technology adoption in the context of global competition. Data will be analyzed from primary and secondary sources, such as industry reports, case studies, government policies, and related literature.

Theoretical Basis

2.1 Definition of Halal Industry According to the Indonesian Ulema Council (MUI)

The Indonesian Ulema Council (MUI) defines halal products as those that are manufactured with halal ingredients, adhere to tayyib regulations, and are free of haram or filthy materials from the facilities. On the other hand, products that are deemed halal in compliance with Islamic sharia standards, such as food, beverages, medications, cosmetics, chemical products, biological products, and genetically modified products, are considered halal, according to the Halal Product Guarantee Organising Agency (BPJPH). In Indonesia, the Indonesian Ulema Council (MUI) is a significant halal standard-setting body. MUI has defined terms and standards pertaining to halal products, covering distribution, production methods, and raw ingredients. This theoretical foundation study will go into the MUI's definition and perspectives about the halal sector. The halal industry is not just a sharia label. Halal certification also improves product quality. Codex shows that it is a system that regulates the halal production chain throughout the world because halal products are an economic problem in Indonesia and throughout the world. According to Nasution (2020), because of the benefits it offers, the halal sector has been recognized as a global need.

2.2 Important MUI Fatwas Regarding the Halal Industry

MUI regularly issues fatwas which serve as the main guide for industry in determining the suitability of products with halal principles. The analysis will highlight key fatwas issued by the MUI related to the halal industry, including the MUI's views on raw materials, production and halal certification.

2.3 The Role of the MUI in the Development of the Indonesian Halal Industry

The MUI's influence in developing the halal industry in Indonesia is not only limited to setting standards. This analysis will also explore the MUI's role in providing halal certification for products, promotional activities, and collaboration with the government and industry players to advance the halal industry in Indonesia.

2.4 Determination of Halal Standards by MUI and its Impact on Industry

The halal standards set by the MUI have direct implications for the industry. The analysis will examine the impact of establishing halal standards by the MUI on industrial operations, producer compliance, policy changes, and consumer responses to halal products on the market.

2.5 Criticism and Challenges to the MUI Approach in the Halal Industry

Despite being an authority, the MUI's approach to setting halal standards has also received criticism and faced a number of challenges. This analysis will explore existing criticisms and challenges faced by MUI in managing the halal industry amidst global economic dynamics.

2.6 Position and Relevance of MUI in the Context of the Global Halal Industry

Finally, the analysis will evaluate MUI's position and relevance in the context of the global halal industry. How MUI adapts to global competition, international cooperation and updates in the halal industry will be the focus in this section.

By exploring the theoretical basis regarding the MUI's views and role in the halal industry, this chapter will provide a comprehensive understanding of how the MUI influences and shapes the development of the halal industry in Indonesia amidst global industrial competition.

Research Methodology

3.1 Research Approach

The purpose of this research, which is descriptive qualitative in nature, is to give a comprehensive picture of the growth potential of the Indonesian halal business in the face of international halal competition. Normative theology and phenomenology techniques are employed by researchers to investigate and examine different facets of human behaviour. Secondary data from publications like books, journals, articles, reports, and other sources pertinent to the research topic are used in the data collection process. Three steps are involved in processing research data: data reduction, data distribution, and data verification. Following that, inferences are made.

3.2 Research Design

This research design is descriptive, which aims to describe and analyze views regarding the halal industry in Indonesia. This research includes document analysis, interviews, and case studies.

3.3 Data Collection Techniques

Data will be collected from various documents related to the halal industry, including MUI fatwas, government regulations, industry reports and related literature. Document analysis will provide a conceptual framework for understanding the development of the halal industry. In-depth interviews will be conducted with stakeholders, such as MUI representatives, producers, consumers, academics and government. The interview will focus on views, experiences and strategies related to the halal industry in Indonesia. Several case studies of the halal industry in Indonesia will be analyzed to gain a deeper understanding of the implementation of halal industry practices.

3.4 Population and Sample

The research population involves stakeholders related to the halal industry in Indonesia. The sample was selected using a purposive sampling approach, ensuring inclusion of a variety of perspectives and experiences.

3.5 Data Collection Procedures

Collecting secondary data through document analysis to understand the conceptual basis of the halal industry in Indonesia. Identify informants and schedule in-depth interviews with stakeholders. Selection and analysis of case studies to gain additional insights. Systematic data recording and analysis.

3.6 Data Analysis

Data will be analyzed inductively by identifying patterns, themes and main concepts. Data analysis is carried out continuously during the data collection process.

3.7 Validity and Reliability

Validity and reliability will be maintained through data triangulation, namely by comparing and matching information from various data sources to ensure the accuracy of the findings. This chapter provides a detailed description of the descriptive qualitative research method used to explore views on the development of the halal industry in Indonesia. This method is designed to provide an in-depth and contextual understanding of the dynamics of the halal industry amidst global competition.

Results and Discussion

Products and the Halal Industry: Indonesia's halal market is expanding quickly, encompassing more than only food and drink. These days, it encompasses a wide range of industries, including sharia finance, halal media and amusement, halal medical and pharmacy, travel, hotels, tourism, Muslim fashion, and cosmetics.

4.1 Sharia-based Finance

By starting its operations as the first sharia bank in Indonesia in 1991, Bank Muamalat began its operations with a profit-sharing system that included sharia financing, insurance and investment. After the merger of Bank Mandiri, Bank Negara Indonesia (BNI), and Bank Rakyat Indonesia (BRI), Bank Syariah Indonesia (BSI) was founded in February 2021, creating a new and extraordinary history for the Islamic finance industry in Indonesia. BSI plays an important role in supporting all economic activities, especially in the halal industry.

4.2 Muslim Clothing

Muslim fashion has developed into an authentic value for Muslims in Indonesia and is now a contemporary lifestyle and trend. Muslim fashion now not only needs to comply with sharia

law but also be a modern culture. Considering that Indonesia is in third place in the Muslim fashion industry, young entrepreneurs in the halal fashion industry, especially hijab, have gone global through events and exhibitions.

4.3 Halal Pharmacy and Cosmetics

The youthful, pious, and active Muslim demographic is the primary source of demand for halal beauty products. The manufacturing of essential components for the halal cosmetics business, such as halal raw materials and the usage of approved substances, must be done in compliance with sharia in terms of packing, shipping, storage, and handling. Concerning the quality of the materials utilised to create their products, manufacturers also need to pay attention. Furthermore, while buying products, customers need to understand how crucial halal certification is for maintaining compliance, safety, and health. Wardah goods have become leaders in the nation's halal cosmetics business because they can compete in both domestic and international markets. Wardah keeps evolving to create goods that fit both Muslims and non-Muslims' modern lifestyles.

4.4 Travel

As the Muslim population in Indonesia increases, people's interest in carrying out the Hajj and Umrah pilgrimages has increased. Travel businesses have responded well to this request by offering religious travel services.

4.5 Accommodation

Apart from travel trends, hotels are an important and mandatory component for Muslim communities when traveling. The first sharia hotel in Indonesia is Hotel Sofyan Jakarta. Now, investors and hotel businesses are increasingly interested in building sharia hotels, as shown by the emergence of other hotels such as Grand Seriti Madani Yogyakarta, Noor Hotel Bandung, and Bayt Kaboki Bali.

4.6 Media and Film Activities

In the field of Islamic-themed film and entertainment there has been development, as demonstrated by the many successful Islamic films that have attracted the attention of a significant audience. One example is the first episode of Nussa Official, which reached 134 million views and received 8.85 million subscribers, occupying the third highest topic on YouTube Indonesia.

4.7 Halal Products

In Indonesia, the halal product industry is developing into a new trend and culture of life. This development shows that the halal industrial market is increasingly attractive for businesses, and the existence of regulations that guarantee halal products and free halal certification issued

by the government increases opportunities for businesses to make halal certified products. PT Atalla Indonesia, for example, is trying to make halal certified glasses.

4.8 Halal Travel

According to research conducted by the Global Muslim Travel Index (GMTI) in 2021, Indonesia's tourism achievements are increasingly promising, with Indonesia ranked fourth as the best Muslim tourist destination in the world.



Figure 1.

Source: State of the Global Islamic Economy Report 2020/2021

Potential of the Indonesian Halal Industry

Indonesia has enormous potential in the fields of food and beverages, fashion, tourism, sharia finance and other sectors. Because halal products and industries encompass a wide range of elements that support a wide range of lifestyles and cultural trends, they are well suited to meet market demand due to the overwhelming Muslim majority.

A. Largest Muslim Population in the World

It is known that Indonesia has the largest Muslim population in the world with 237.53 million people, or 86.9% of 27 countries, and the largest adherents of Islam are in Asia, according to the Mastercard and Crescent Rating 2022 report. This data also shows that there are 2 billion people Islam, or 25% of the world's total population. Thus, people's need for halal products will increase. The revival of the Islamic economy, including the halal industry, has become a momentum for people to seriously develop the halal industry domestically, throughout the world, as an awareness and compliance with

sharia and as a new culture of life that is safer, healthier and halal for consumption. With the halal industry becoming more popular across countries, Indonesia will become an important part of the global halal industry. In addition, the International Trade Codex regulates halal products, so that halal industries and products are not only a problem for Muslims but have also become part of the global production system.

Other countries are participating in the competition to launch halal products to meet the need for global market share, even though these countries do not have significant Islamic populations. Because Indonesia is the country with the largest Muslim population in the world, it must try not to be left behind in the development of halal industries and products, and even become a pioneer of halal industries and products in the world.

B. Golden Indonesia 2045

The demographic bonus in 2045 will reach 70% of Indonesia's population, with the majority from the productive age group (Indonesiabaik.id, 2021). Because of this potential, demand for halal products from various industries will continue to increase.

C. High consumption of halal products among Indonesian people

The halal business in Indonesia generates over USD 220 billion in revenue annually. This is a substantial figure, and it is anticipated to rise further as the nation's Muslim population grows and more people become aware of the advantages of halal goods. Indonesia has the potential to dominate the halal industry if certain conditions are met. As an example, the halal food business accounts for the majority of the industry's spending. If Indonesia concentrates on this area and maximises the growth of the domestic halal food business, both large industries and MSMEs, it will be able to compete with global industry. As is well known, Indonesia is incredibly wealthy in terms of its natural resources, livestock, fisheries, agriculture, and plantations. Thus, it is highly likely that Indonesia will take the lead in the global halal market if major industries and MSMEs choose to pursue halal certification.

D. Legal Regulations/Halal Product Guarantee Law

The government's attempt to support and grow Indonesia's halal sector is reflected in the JPH Law. The JPH Law gives industry participants guidelines and requirements for implementing specific halal certification in good governance procedures. For consumers of halal products as well as business players, this legal framework is meant to offer transparency and clarity of information as an official assurance acknowledged by the state. Furthermore, the Indonesian halal industry's standards and certification programmes can be established using this rule as the policy foundation. This would facilitate the smooth operation of the entire halal certification process in line with the objective of establishing Indonesia as a global hub for halal.

The National Sharia Finance Committee (KNKS) was established under Presidential Regulation No. 91 of 2016 in order to promote the expansion of the halal sector. In

order to facilitate the national development of the sharia financial sector, this law creates the KNKS, which stands for coordination, synchronisation, and synergy of policy directions and strategic programmes. Accelerating, expanding, and advancing the development of sharia finance is the goal of KNKS. The President requested that KNKS oversee the whole sharia economy, not only the financial industry.

It is envisaged that by maximising and expanding its market potential, this new rule will assist Indonesia in becoming a global hub for halal. The 2020 State of Global Islamic Report serves as evidence of this point, ranking Indonesia fifth in the world's Islamic economies, behind the likes of Malaysia, the United Arab Emirates, Bahrain, and Saudi Arabia. According to KNKS (2020), Indonesia remained ranked tenth in the world in the category of Islamic economies in 2019.

E. The government supports substitutes for imported goods

With local products through import substitution policies. With the increase in Indonesia's population, the demand and need for halal products increases. Therefore, the government is trying to reduce dependence on imported products that are not halal with products made abroad.

F. Establishment of the National Sharia Economic and Financial Committee (KNEKS)

Presidential Regulation no. 28 of 2020 established KNEKS to support national economic development and encourage sharia economic and financial growth. KNEKS aims to improve coordination, synchronization and synergy between authorities, ministries, institutions and other stakeholders in this sector. KNEK has created the Indonesian Sharia Economic Masterplan 2019-2024 to support the development of the halal industry in Indonesia and increase the value of its components. With this master plan, the prospects for developing the halal industry in Indonesia are increasingly promising.

G. Collaboration from the Authorities

Many institutions contribute to the development of halal products in Indonesia, such as:

1. To assist BPJPH Ministry of Religion, which is the main stakeholder in implementing halal product guarantees, collaboration is needed from various parties, such as the Minister of Health, Minister of Agriculture, Minister of Foreign Affairs, Minister of Research, Technology and Higher Education, Minister of Finance, Minister of Communication and Information Technology, Chief of Police, Head of BPOM, Head of BSN, and MUI, to sign an MoU regarding the Implementation of Halal Certification Services
2. Through MEKSI 2019-2024, the National Development Planning Agency (Bappenas) and KNEKS created a halal industry development strategy.

3. In response to the JPH law, educational institutions such as universities were established by establishing halal study centers, launching study programs that focused on the halal industry, and several courses were also adjusted according to halal industries and products (Sukoso et al., 2020).

H. Establishment of the Halal Product Guarantee Organizing Agency (BPJPH) and LPH

Determination of legal regulations related to the halal industry, government efforts to ensure that the halal industry is the government's main priority. Developing halal products and industries is also demonstrated by establishing certain authorities or stakeholders who are responsible for the halal product industry. BPJPH was formed on October 11 2017 based on Law no. 33 of 2014 under the auspices of the Minister of Religion, and is responsible for halal registration, halal certification and halal verification, product manufacturing and supervision, collaboration with all relevant stakeholders, and establishing product halal standards and policies

With the presence of BPJPH, halal certification which has been handled by MUI for years becomes more important. From previously being voluntary (voluntary) to mandatory (mandatory). This is a law that must be implemented in the national interest. To make it easier for business actors to obtain halal certification, BPJPH has established representative offices in various provinces and cities in Indonesia. This is very important considering the size of Indonesia and the number of people suffering from influenza. Apart from that, the government is also encouraging the establishment of a Halal Inspection Institute (LPH), which is assigned by law to carry out product halal inspections or tests. Intended to collaborate with relevant ministries or institutions, LPH, and the Indonesian Ulema Council (MUI) as well as with domestic and foreign institutions regarding guarantees of halal products.

I. Facilitate the Halal Certification Process for MSEs

Through services that are free, easy, professional and have integrity in accordance with Sharia management standards, stipulated in Law no. 11 of 2020 concerning Job Creation, so that all MSEs who comply with the stipulated provisions have access to halal certification services.

A. Free Halal Certificate Program (SEHATI) Available

To make the 10 million halal certified products program a success, BPJPH, together with Ministries, Institutions, Regional Governments and other BPJPH partners, is helping business actors obtain halal product certification for free starting August 24 2022.

The government has created the Indonesia Muslim Travel Index (IMTI), which uses GMTI as a reference standard for Indonesian tourism actors to develop halal tourism, as proof of its commitment to achieving the best position in the tourism sector. To carry out the assessment, GMTI uses four standards: access, communication, environment,

and service. The government provides the same Muslim tourism services through the Ministry of Tourism. Apart from that, this opens up opportunities for tour packages such as travel businesses, hotels, shops and halal restaurants.

K. Community Support

Many people, including academics, clergy and the general public, welcome the government's efforts to develop the halal industry in Indonesia. This is proven by the formation of the halal community, a center for halal studies. Examples include the West Sumatra halal care community and Bogor halal small businesses.

L. Indonesia's Achievements in the Halal Industry

According to the 2022 State of the Global Islamic Economy Report, Indonesia is ranked 4th for developing a strong sharia economic ecosystem; Indonesian halal food is in second place; sharia finance, halal fashion, halal pharmaceuticals, and the largest producers of halal products to OIC countries in 2022.

Halal Industry Regulations in Indonesia

The study of the halal industry in Indonesia is now an interesting topic of discussion, and the government needs to make strong policies regarding the halal industry in the food and beverage sector and other economic fields. Legal regulations show that Indonesia is the country with the majority of Muslims in the world, apart from encouraging the trend of the halal industry. Because the government is responsible for protecting everyone's rights, including the right to obtain or consume halal products, as regulated in the Republic of Indonesia Law Article 29 paragraph 2, the government uses several of these elements as a basis for creating laws that regulate the halal industry. Several important laws that encourage the growth of the halal industry in Indonesia include: 1. Law no. 33 of 2014 concerning Halal Product Guarantees.

The government pays great attention to the development of the halal product industry, as shown by the various efforts and strategies it has taken. One of the efforts taken is Law no. 33 of 2014 concerning Halal Product Guarantees, which sets standards to ensure that goods imported and sold in Indonesia must be halal certified. In fact, protection, justice, certainty, accountability, transparency, effectiveness, efficiency and professionalism are all things discussed in Law Number 33 of 2014.

The establishment of Law no. 33 of 2014 due to several things, such as: a. The 1945 Republic of Indonesia Constitution, which gives freedom to its people to worship and worship according to their own religion and beliefs; b. Guarantee that all religious adherents can worship and practice their religion; and c. Guarantee that the state is responsible for protecting and guaranteeing that the products consumed by the public are halal.

Thus, the aim of guaranteeing the implementation of the halal product industry is to provide the public with comfort, security, safety and confidence regarding the availability of halal products, as well as to increase profits for businesses that sell halal products.

One of the main contents of Law no. 33 of 2014 are:

- 1) Ensure that halal products are available;
- 2) Defining the rights and responsibilities of business actors in guaranteeing halal products;
- 3) Ensure that halal products are guaranteed by BPJPH;
- 4) Procedures for obtaining halal certificates;
5. BPJPH collaboration with MUI, LPH, and other related ministries or institutions;
- 6) Supervision of JPH;
- 7) Administrative and criminal sanctions.

To ensure that the products made have added value because they meet halal standards. Apart from that, halal certification can increase product competitiveness in domestic, national and international markets, so it is hoped that it can help Indonesia's economic growth.

Minister of Religion Regulation Number 26 of 2019 concerning Religion provides details about the materials and products used, including but not limited to the following materials:

- a. Comes from nature without processing.
- b. Those in this category have no risk of containing prohibited ingredients.

Job Creation Law Number 11 of 2020

The Job Creation Omnibus Law, which was ratified and signed by the President of the Republic of Indonesia on November 2 2020, officially became Law no. 11 of 2020, making major changes to Law no. 33 of 2014 concerning Halal Product Guarantees. The aim of this change is to simplify and simplify the halal certification process. Provisions involving changes related to halal product guarantees are contained in clusters that simplify standards and evaluation of conformity. A comparison between the changes to the JPH Law and the Omnibus Job Creation Law is shown here.

Government Regulation no. 39 of 2021 concerning the Implementation of the Halal Product Guarantee Sector (PP No. 39 of 2021) was created to implement the policies stated in article 48 and article 185 letter b of Law no. 11 of 2020 concerning Job Creation. This PP regulates several things, such as:

- a. Implementation of JPH by BPJPH;
- b. Ensure that the locations, places and tools used to produce halal products are separated from the locations, places and tools used to produce non-halal products. Processes such as slaughtering, processing, storage, packaging, distribution, sales and presentation of products are included.
- c. Procedures for the establishment, accreditation, appointment and dismissal of Halal Auditors, as well as the scope and revocation of approval for the establishment of a Halal Inspection Institution (LPH);
- d. Rights and obligations of business actors, as well as procedures for determining, responsibilities and location of Halal Supervisors;

- e. Procedures for applying for, extending and establishing BPJPH halal certification;
- f. Ease of obtaining halal certification for MSE workers who meet the halal requirements set by BPJPH;
- g. Include labels indicating halal and non-halal;
- h. JPH supervision carried out by BPJPH and other individuals

Minister of Religion Regulation no. 20 of 2021 concerning Halal Certification for Micro and Small Companies

To fulfill the requirements of article 79 paragraph 8, article 80 paragraph 4, and article 81 paragraph 2 PP No. 39 of 2021 concerning the Implementation of the Halal Product Guarantee Sector, PMA concerning Halal Certification for MSEs must be made. This PMA stipulates several important policies related to halal certification for MSEs, including:

- a. General requirements;
- b. Criteria for MSE actors;
- c. Supervise the halal product production process;
- d. Requirements and procedures for determining MSE business actors who are not subject to fees;
- e. Financing

MUI fatwas

- a. Guidelines for Organizing Sharia-Based Tourism Number 108/DSN-MUI/X/2016
- b. Implementation and Operational Guidelines for Sharia Cooperatives Number 141/DSN-MUI/VIII/2021
- c. Number 139/DSN-MUI/VIII/2021 Promotion of Sharia-Based Insurance Products
- d. Share Number 135/DSN-MUI/V/2020

5. 1 Conclusion

With 237.53 million people, or 86.9% of the world's total population of 273.32 million, Indonesia is the largest Muslim nation in the world and has enormous potential to grow the halal business. The halal market currently encompasses, in addition to food and drink, sharia banking, Muslim fashion, cosmetics, halal medications, travel, lodging, tourism, media, and motion picture leisure. Laws such as Law No. 33 of 2014 concerning JPH, which is reinforced by Minister of Religion Regulation No. 26 of 2019, Law No. 11 of 2020 concerning Job Creation, which is reinforced by PP No. 39 of 2021 concerning Implementation of the Halal Product Guarantee Sector, and Law No. 20 of 2021 concerning Halal Certification for Micro and Small Business Actors have all been strengthened in order to promote the expansion of the halal industry. As previously indicated, Indonesia has a lot of potential to grow the halal sector in a number of ways. Thus, cooperation and participation from a variety of groups are required to create this government discourse. Although the Indonesian halal market has experienced tremendous expansion, it still faces several obstacles in the face of fiercer competition worldwide. Many inferences can be made from this research. The halal business in Indonesia is expanding positively, helped along by rising consumer demand and awareness of the necessity for halal products. An important factor in determining halal standards and offering certification that affects Indonesia's halal business is the Indonesian Ulema Council (MUI). Coordination between associated entities, certification uniformity, and regulation complexity

continue to be problems. To promote innovation, enhance infrastructure, and boost the halal industry's competitiveness, closer cooperation between the government, business community, academic institutions, and the MUI is required.

5.2 Suggestions

Based on the conclusions above, several suggestions can be proposed to strengthen Indonesia's halal industry:

1. There needs to be efforts to consolidate and refine regulations related to the halal industry to ensure clarity and consistency in the certification process.
2. Encouraging improvements in the quality of halal certification with clear and consistent standards in accordance with global market demands.
3. It is necessary to continue to educate the public and industry players about the importance of halal products and the need for compliance with halal principles.
4. Encourage closer cooperation between the government, MUI, industry and related institutions to produce innovation, investment in research and development of quality halal products.

5.3 Future Outlook

The halal industry in Indonesia has great potential to grow stronger in the global market. With strong collaboration between all stakeholders, including government, certification bodies, industry and MUI, as well as a commitment to continuously improving product quality and innovation, Indonesia can strengthen its position as a key player in the global halal industry.

5.4 Final Notes

This research presents an overview of the development of the halal industry in Indonesia and provides a basis for improving policies and strategic steps to overcome the challenges faced. Hopefully the proposed recommendations can serve as a guide for all parties involved in the halal industry to achieve sustainable and competitive growth in the global market.

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THE INFLUENCE OF TEACHING COMPETENCIES IN TEACHERS' PERFORMANCE AND STUDENTS' ACADEMIC ACHIEVEMENT IN PRIMARY SCIENCE EDUCATION

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Abstract: *The teaching competencies of science teachers significantly influence students' science academic achievement. It shapes the students' understanding of complex science concepts and their ability to excel in scientific exploration, ultimately nurturing their scientific literacy. This study assessed the teaching competencies influencing the teaching performance of 58 primary science teachers relative to the academic achievement of their students in science at the Tinoc District, Tinoc, Ifugao, Philippines. The significant differences by teacher demographics were also determined. This is relevant to the district's observed low scientific literacy and achievement of students as assessed in recent years. Using a quantitative approach, the study employed a modified questionnaire that was validated and pilot-tested. Results disclosed that the science teachers strongly agreed that professionalism is the most common teaching competence influencing their performance, indicating their adherence to local and national standards and code of conduct. They also strongly agreed with teaching effectiveness, personal skills, educational planning, and management skills. Generally, there were no significant differences among the teaching competencies regardless of the teachers' sex, age, highest educational attainment, and years in service. Meanwhile, the students' science academic achievement was determined to be lower average, suggesting low scientific literacy. Correspondingly, the teaching competencies and students' academic achievement were not correlated. Nonetheless, the teacher's capacity to impact the learners' scientific exploration and achievement remains intact. Further studies are recommended to be undertaken.*

Keywords: *Primary Science Education, Primary Science Teachers, Students' Science Academic Achievement, Teaching Competency, Teacher Performance*

Introduction

Education greatly impacts nationwide development where teachers play a central role, involving acquiring students' knowledge and skills and securing the nation's future. The role of teachers is paramount, serving as the cornerstone of educational and societal development. Beyond the transmission of knowledge, teachers play a pivotal role in shaping students' character, values, attitudes, and behaviors. The public recognizes not only the teachers' responsibilities but also their roles in society. Their influence extends beyond the classroom, contributing to forming responsible, informed, and morally grounded members of society. Whereas, the role and quality of teachers are mostly evaluated through their performances. Teacher performance is an observable set of attitudes and behaviors that lead to students

acquiring knowledge and skills (Martin, 2018). On the other hand, teaching competency pertains to the knowledge, skills, values, attitudes, and behaviors a teacher possesses to improve their performance or qualifications and is crucial to their aim of excellence (Nessipbayeva, 2012). Teacher performance is directly observed in the teaching process, while teaching competency is the qualifications that a teacher brings to their educational role (Martin, 2018; Nessipbayeva, 2012). Competency can include assessment capabilities, developing classroom and educational plans, classroom maintenance and safety, student behavior management, relationships with students, collaborating with colleagues and superiors, implementing and adhering to policies, and curriculum management (Nessipbayeva, 2012).

Teaching competency in science education is significant as it ensures the accurate and effective transmission of complex scientific concepts and fosters students' critical thinking, inquiry skills, and passion for scientific inquiry. Consequently, the effective teaching of science requires particular attention on the part of the teachers. It is imperative to optimize student involvement and promote the understanding of scientific principles (Bal-Taştan et al., 2018). It is asserted that teachers matter and that their attributes have a crucial role in shaping the motivation to learn among science students. Teachers play a significant role in influencing student progress in all areas of science education within the school setting (Rockstroh, 2013).

Literature Review

Teaching Competencies

Personal skills. Teaching is a noble profession that combines science and art. Enjoying and committing to professional duties can improve teaching. Teachers can accomplish productive results by viewing their duty as knowledge providers and caretakers of students' needs and behaviors (Maazouzi, 2019). Teachers' affective behaviors positively correlated with students' intrinsic desire and academic self-concept (Skaalvik & Skaalvik, 2013).

Management skills. The most effective teachers maximize students' potential. Accordingly, pleasant, polite, and robust student management can boost academic accomplishment (Maazouzi, 2019). Acknowledging mistakes is essential to learning in a good classroom. Additionally, the classroom encourages active learning and excitement from teachers and students (Hattie, 2008). Effective learning requires teachers to provide constructive criticism and praise, manage mistakes, answer questions, and offer well-organized lessons.

Educational planning. Teachers can introduce courses thoroughly and achieve educational aims (Hofer & Harris, 2019). Teachers should plan lessons encouraging students to learn via inquiry rather than reading, watching, or listening. Teachers should let students discuss and challenge ideas throughout lessons (Ozfidan et al., 2017). In a supportive setting, students can self-improve and control their learning. Teachers should ensure students learn as much as possible and take an interest in them. By doing so, they provide quality education so long as the student remains at the core of their teaching.

Teaching effectiveness. Asking higher-level questions to develop students' critical thinking is crucial (Muijs & Reynolds, 2011). Inquiry is essential and should be given much time. For instance, students should be asked to design a science experiment to explore advanced concepts. Teachers should provide guidance during experiments or classes to ensure students

learn science process skills. Since science requires passion from teachers (Lebata, 2014), they must spend enough time helping pupils understand complex scientific concepts.

Professionalism. It is critical to acknowledge that teachers have duties beyond teaching. This covers educational planning, implementation, and evaluation. Teachers must enhance their careers, improve their teaching skills, learn new educational methods, and master information and communication technology. The principles and standards of teachers' professional development should help them understand students' different social, emotional, and educational needs and exhibit their knowledge, abilities, and attitudes. Teacher professional development is widely recognized as a way to increase topic knowledge and expertise. It helps teachers modify their behavior and progress professionally (Darling-Hammond et al., 2017).

Teacher Characteristics and Competencies

Regarding teachers' sex, the distinction between male and female elementary school teachers is unclear in Wood's (2012) survey. It indicated no statistically significant disparities in the perceptions of females and males. However, male teachers were criticized more than female teachers for their student-nurturing skills. Islahi and Nasreen (2013) found no statistically significant sex difference in teaching approaches. Lim and Meer (2017) found that female students with female teachers score higher on exams. Same-sex teachers had little effect on male students' academic performance. Based on age, Sivasakthi Rafammal and Muthumanickam (2012) found no difference in teacher effectiveness between younger (30-year-olds) and older (30–40-year-olds). It suggested that instructor efficacy is unaffected by age, whether young, mature, or elderly. Chiang and Wang (2014) found that teachers over 30 were more likely to make autonomous schooling decisions.

Based on educational degrees, Ronfeldt et al. (2013) and Klassen and Tze (2014) indicated limited knowledge of how graduate education affects teachers' professional status, which can indirectly affect student results. Sahlberg (2015) claimed that requiring a master's degree has made teaching more appealing to talented and driven people. However, Tucker and Fushell (2013) and Kowalczyk-Waledziak et al. (2017) found that postgraduate master's degrees improve instructors' professional self-image. Meanwhile, Unal and Unal (2012) found that instructors' classroom management views were strongly correlated with experience. Experienced teachers had better classroom control, student interaction, and decision-making than less experienced teachers. According to Sadik and Akbulut (2015), teachers with at least ten years of experience are more effective and competent managers.

Teacher Competencies and Students' Academic Achievement

The teachers' competencies, including confidence, pedagogical skills, and teaching design and materials effectiveness, affect students' academic performance and scientific interest. The 2010 South African Council for Educators (SACE) report established a link between teachers' content understanding and students' academic success. SACE (2010) indicated that teachers are crucial to curriculum implementation. Likewise, Spaul (2013) argued that teacher quality restricts education quality. Studies show that students taught by unqualified or underprepared teachers who need help understanding science have poor outcomes (Lebata, 2014). Evidence implies that students develop negative views of science from teachers who cannot use an

acceptable educational method (Abudu & Gbadamosi, 2014). Science teachers with specialized expertise understand scientific concepts beyond the curriculum (Tsanwani et al., 2014). The understanding and application of educational procedures by science teachers play a crucial role in fostering the interests and attitudes of students toward pursuing science subjects in the future.

Primary Science Education in the Philippines

The Kindergarten to Grade 12 (K to 12) Science curriculum modified by the Department of Education (DepEd) emphasizes student-centered, inquiry-based, and evidence-based learning to create explanations (Department of Education, 2016). The curriculum uses a spiral paradigm to teach and develop Biology, Physics, Chemistry, and Earth Science topics and skills across grade levels. It gradually increases complexity, helping students understand these fields' essential ideas. Based on DepEd, students' academic achievement can be assessed using the Mean Percentage Score (MPS). It is the students' raw score, denoting the proportion of accurately answered items in an examination relative to the overall number of items. For instance, if a student obtains an MPS of 50% in a subject, they have accurately responded to 20 out of the 40 test items.

The Philippines participated in the Programme for International Student Assessment (PISA) administered by the Organization for Economic Co-operation and Development (OECD). For PISA 2022, Filipino students performed way below the OECD average in science. This is a similar result when the country participated in PISA 2018 (OECD, 2023). Only 23% of the students attained a basic proficiency in science. This indicates that only one out of four students can discern the accurate rationale behind well-known scientific occurrences and validate conclusions (Chi, 2023; OECD, 2023). This result underscores the pressing need to address the existing concerns and disparities in achieving a high standard of basic education in the Philippines. This suggests a need for a more comprehensive understanding of the content of the K to 12 curriculum standards.

Research Gap

Teaching competencies influence students' development of scientific literacy to empower them to engage in an informed manner, making the teachers' role an essential aspect of science education (Bal-Taştan et al., 2018; Rockstroh, 2013). Effective science teachers are crucial in fostering a scientifically literate individual, which, in turn, benefits society by enabling decision-making, critical thinking, and active engagement with scientific issues. However, below-average achievement of students in science, especially in the country, is observed, as implied by international achievement tests (Chi, 2023; OECD, 2023). This issue has prompted the study to examine and evaluate the competencies that influence teaching performance in association with the academic achievement of students in science in the locality.

Research Aim and Questions

This study aimed to assess the teaching competencies influencing science teachers' performance and their association with the academic achievement of their students in primary science education. The study further investigated demographic disparities in teaching competencies. The following research questions guided this study:

1. What teaching competencies influence the primary science teachers' performance?
2. Is there a significant difference in the teaching competencies of the teachers when grouped according to their profiles?
3. What is the academic achievement of primary students in science?
4. Is there a correlation between the teaching competencies and students' academic achievement in science?

Research Significance

Global researchers and educational institutions can learn about primary science education quality by studying how teaching competencies like personal skills, management skills, educational planning, teaching effectiveness, and professionalism affect teaching performance and student achievement in science. Understanding primary scientific teaching skills is crucial to building informed pedagogical approaches that allow teachers to create engaging and successful learning experiences that set the stage for lifelong learning and academic success. The researchers anticipate that this study improves teacher training, curriculum creation, and educational methods to encourage students' scientific literacy and critical thinking.

Methodology

Research Design

A quantitative approach assessed the teaching competencies influencing the science teachers' performance and students' academic achievement in this study. This systematic and uniform data collection procedure quantifies variables and allows statistical analysis (Creswell, 2009). A descriptive survey was utilized to assess teachers' perceived level of influence on the teaching competencies. This research method collects data from respondents via a questionnaire. The study was conducted during the last quarter of 2023.

Participants

The study was conducted at Tinoc District, Division of Ifugao, Philippines, with 58 primary science teachers participating. The selection process utilized total enumeration, involving all the teachers handling science subjects from Grades 3 to 6 levels from the 16 primary schools in the district. As structured in this study, the science teacher participants were selected to evaluate the teaching competencies influencing their performance and their students' academic achievement in the locality. Regarding sex, the sample population comprises 36% male and 64% female teachers. Based on age, 19% were 20 to 30, 45% were 31 to 40, and 36% were 41 to 50 years old. Regarding the highest educational attainment, 71% of the teachers have finished their bachelor's degree, while 29% have undertaken their master's degree. There were no involved teachers with doctorate degrees among the participants. Based on the years in service, 60% have 1 to 10, 33% have 11 to 20, and 7% have 21 to 30 years of experience. On the other hand, 284 students were involved in the study across the Grades 3 to 6 levels. They were the primary students taught by the science teachers during the study's conduct. The data regarding science MPS of these students was the basis of the academic achievement used in correlational analysis with the teaching competencies. The student population comprised 19% from Grade 3, 25% from Grade 4, and 28% for Grades 5 and 6.

Instrument

The Philippine Professional Standards for Teachers (PPST) evaluation from the Department of Education (2017) was modified for the study's questionnaire. These standards explain the knowledge, abilities, and values teachers need to succeed, promote student learning, and provide high-quality education. Further, Dr. James Stronge's Winchester Public Schools Teacher Performance Evaluation System (TPES) inspired certain survey item statements. It collects and displays data to evaluate teachers' performance against job requirements (Stronge, 2012). Using the PPST and TPES, the study developed 36-item statements that were categorized into five teaching competencies. These are personal skills, management skills, educational planning, teaching effectiveness, and professionalism. Two school principals and one department head validated the survey. The Aiken's validity coefficient was .856, indicating that all items were valid. Pilot testing with 20 teachers from a different district found that the item statements were highly reliable, with a Cronbach's alpha of .959. The questionnaire has two parts. The first section asked teachers about their sex, age, highest education, and years of employment. The second part consisted of the 36-item statements regarding the teaching competencies. The influence of teaching competencies was measured on a 4-point Likert scale: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D), and 1 = Strongly Disagree (SD). Students' academic achievement in science was determined by collecting the MPS data from their respective class advisers.

Procedures

The study's objectives, methodology, and significance were submitted to the researchers' affiliated institution for approval. A research ethics committee review was also requested for the study. A letter was addressed to the DepEd Ifugao Schools Division Office requesting permission to study in Tinoc District. It includes asking school heads for validation, piloting the questionnaire, and collecting MPS from students. The questionnaire was pilot-tested after approval. Meanwhile, the selected science teacher participants received consent letters. It informed the study's summary, goal, duration, and participation commitment. The survey's danger of distress or emotional discomfort was noted, emphasizing their freedom to withdraw from the study without sanction. The letter also suggested suitable teacher training as a study benefit. Teachers' voluntary engagement and data confidentiality were stressed. They can reach the researchers directly if they have any questions during the study. After finalizing it, the researchers individually gave the teachers the questionnaire to accommodate questions regarding the study and increase questionnaire retrieval. The MPS of students were also personally gathered by the researchers. All data gathered were compiled in a spreadsheet and kept by the researchers.

Data Analysis

Descriptive and inferential statistics were used to organize and analyze the responses obtained from the teachers and students' academic performance. Frequency, percentage, and mean were used to analyze the teachers' responses. Statistical limits served to describe the results of the means, with 3.26 - 4.00 = Strongly Agree (SA), 2.51 - 3.25 = Agree (A), 1.76 - 2.50 = Disagree (D), and 1.00 - 1.75 = Strongly Disagree (SD). Likewise, the computed mean of students' academic achievement was described using the MPS quartile distribution. It describes

academic achievement as 76% - 100% = Superior, 51% - 75% = Upper Average, 26% - 50% = Lower Average, and 0% - 25% = Poor. The t-test was employed to assess whether a significant difference exists in the level of effect of the teaching competencies when categorized by sex and highest degree of education. Analysis of Variance (ANOVA) was utilized to compare significant differences in the teachers' profiles regarding age and years of service. The Pearson-product-moment correlation (PPMC) was used to examine the correlation between teaching competencies and students' academic achievement in science.

Results

As shown in Table 1, professionalism is the top teaching competency influencing the teaching performance of primary science teachers. It was followed by teaching effectiveness, personal skills, educational planning, and management skills. Results also showed that regardless of rank, all teaching competencies perceived strong agreement from the teachers.

Table 1: Teaching Competencies Influencing the Science Teachers' Performance

Teaching Competencies	M	SD	Descriptive Equivalent	Rank
A. Personal Skills	3.69	0.47	Strongly Agree	3
B. Management Skills	3.66	0.50	Strongly Agree	5
C. Educational Planning	3.68	0.47	Strongly Agree	4
D. Teaching Effectiveness	3.71	0.48	Strongly Agree	2
E. Professionalism	3.81	0.39	Strongly Agree	1

In Table 2, results indicate no significant differences regarding the personal skills, management skills, and educational planning competencies influencing the teacher's performance when grouped according to sex. There are also no significant differences in the perceived level of effect of teaching effectiveness and professionalism among the female and male teachers.

Table 2: Teaching Competencies Influencing the Teachers' Performance by Sex

Teaching Competencies	Male		Female		t-value	p-value
	M	SD	M	SD		
A. Personal Skills	3.67	0.50	3.71	0.46	-0.949 ^{ns}	.189
B. Management Skills	3.65	0.51	3.67	0.49	-0.314 ^{ns}	.380
C. Educational Planning	3.75	0.44	3.64	0.49	0.670 ^{ns}	.078
D. Teaching Effectiveness	3.72	0.49	3.71	0.47	0.233 ^{ns}	.408
E. Professionalism	3.75	0.43	3.84	0.37	-1.844 ^{ns}	.053

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

Table 3 reflects that when the teachers were grouped according to age, there is a significant difference in the perceived level of effect of personal skills on the teaching performance of the teachers. However, there are no significant differences in the management skills, teaching effectiveness and professionalism across the teachers' ages.

Table 3: Teaching Competencies Influencing the Teachers' Performance by Age

Teaching Competencies	20-30 y/o		31-40 y/o		41-50 y/o		f-value	p-value
	M	SD	M	SD	M	SD		

A. Personal Skills	3.66	0.48	3.69	0.48	3.71	0.45	3.214*	.043
B. Management Skills	3.74	0.44	3.62	0.51	3.68	0.50	0.067 ^{ns}	.985
C. Educational Planning	3.82	0.39	3.69	0.47	3.60	0.51	2.056 ^{ns}	.145
D. Teaching Effectiveness	3.82	0.40	3.64	0.51	3.74	0.46	1.778 ^{ns}	.178
E. Professionalism	3.95	0.21	3.76	0.43	3.79	0.41	0.954 ^{ns}	.454

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

Table 4 indicates no significant differences in personal skills, management skills, and educational planning when the teachers were grouped according to their highest educational attainment. The same observation is seen in teaching effectiveness and professionalism in their teaching performance regardless of their bachelor's or master's degree.

Table 4: Teaching Competencies Influencing the Teachers' Performance by Highest Educational Attainment

Teaching Competencies	Bachelor's Degree		Master's Degree		<i>t</i> -value	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
A. Personal Skills	3.74	0.45	3.67	0.50	1.453 ^{ns}	.280
B. Management Skills	3.70	0.46	3.59	0.57	0.164 ^{ns}	.876
C. Educational Planning	3.68	0.47	3.68	0.49	0.468 ^{ns}	.653
D. Teaching Effectiveness	3.72	0.47	3.69	0.40	0.385 ^{ns}	.768
E. Professionalism	3.83	0.38	3.76	0.43	0.218 ^{ns}	.824

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

Results in Table 5 show no significant differences in the perceived effect of personal skills, management skills, and educational planning in teachers' teaching performance according to the number of years in service. Likewise, there is no significant difference in their teaching effectiveness and professionalism across the teachers' 1 - 30 years of teaching.

Table 5: Teaching Competencies Influencing the Teachers' Performance by Years in Service

Teaching Competencies	1 - 10 years		11 - 20 years		21 - 30 years		<i>f</i> -value	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
A. Personal Skills	3.66	0.48	3.76	0.46	3.69	0.48	2.467 ^{ns}	.085
B. Management Skills	3.69	0.46	3.65	0.51	3.42	0.65	0.354 ^{ns}	.875
C. Educational Planning	3.68	0.47	3.74	0.44	3.38	0.58	1.964 ^{ns}	.148
D. Teaching Effectiveness	3.72	0.47	3.75	0.46	3.43	0.63	1.356 ^{ns}	.285
E. Professionalism	3.84	0.37	3.77	0.42	3.67	0.48	0.432 ^{ns}	.830

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

Table 6 shows the science MPS data from Grades 3, 4, 5, and 6. These MPS data showed students' science performance as rated by their teachers. Note that all grade levels had MPS near 50%, indicating lower science achievement. Overall, the science MPS scored 50.25%, which was below average.

Table 6: Overall Mean Percentage Score of the Primary Students in Science

Grade Levels	N	MPS	Descriptive Equivalent
A. 3	55	50.20%	Lower Average
B. 4	71	50.23%	Lower Average
C. 5	79	50.28%	Lower Average
D. 6	79	50.30%	Lower Average
Overall MPS		50.25%	Lower Average

In Table 7, the correlation results show no significant relationship between teachers' teaching competencies and students' academic achievement in science. There is no correlation between the teachers' personal skills, management skills, educational planning, teaching effectiveness, and professionalism and their students' MPS in science.

Table 7: Correlation Between the Teaching Competencies and Mean Percentage Score

Teaching Competencies	r-value	p-value
A. Personal Skills	.0417 ^{ns}	.7357
B. Management Skills	.1017 ^{ns}	.4092
C. Educational Planning	.0437 ^{ns}	.7238
D. Teaching Effectiveness	-.0215 ^{ns}	.8622
E. Professionalism	.0265 ^{ns}	.8303

Note: * - significant ($p > .05$); ns - not significant ($p > .05$)

Discussion

Professionalism is ranked as the most perceived teaching competency that influences the teaching performance of primary science teachers. This is consistent with Darling-Hammond et al.'s (2017) affirmation that professional development for teachers is viewed as a way to help them reach a certain level of professional growth, improve their knowledge and proficiency, and provide a platform for behavior modification. Nonetheless, teachers must always remember that the elements of professional development should be structured so that teachers can demonstrate their qualifications in terms of knowledge, skills, and attitudes, as Nessipbayeva (2012) shared. Professionalism among the teachers showed they followed academic standards and conduct. Specifically, this study examined attendance, timeliness, submitting requirements, wearing correct dress and uniforms, and efficient contact with coworkers. Their participation in school activities and desire to improve their teaching were also considered.

The teachers' perceptions of personal skills, management skills, educational planning, teaching effectiveness, and professionalism were determined to be the same regardless of sex, agreeing with Wood (2012) and Islahi and Nasreen (2013). This implies that male and female teachers have the same perception of the influence of their teaching competencies. Regarding age, the non-significant determination of management skills, educational planning, teaching effectiveness, and professionalism among the teachers is similar to the result of Sivasakthi Rafammal and Muthumanickam (2012), where age, either young, mature, or old, does not make any difference to teacher effectiveness. A significant difference in personal skills shows how teachers approach and handle teaching tasks. This confers with Chiang and Wang (2014),

indicating that older teachers tended to make their own decisions. This may explain why older teachers lose enthusiasm to teach. Results indicated the non-significance in the educational attainment among the teachers. It does not reflect that of Kowalczyk-Waledziak et al. (2017), Tucker and Fushell (2013), and Sahlberg (2015), signifying that obtaining a higher degree is beneficial. It conveys that the teaching competencies do not vary, even if the teachers have a bachelor's or master's degree. However, this may reflect Klassen and Tze (2014) and Ronfeldt et al. (2013), positing that more needs to be known about how graduate education affects teachers. There are also no significant differences in the teachers' perceptions of the teaching competencies according to their years in service. This entails that the teachers' perception of their competencies is similar based on longitude of experience. It disagrees with Unal and Unal (2012) and Sadik and Akbulut (2015), where experienced teachers were better at their jobs. This result suggests that the teachers, no matter how long their years in service were in teaching, still have excellent personal skills, management skills, educational planning, teaching effectiveness, and professionalism.

The general non-significance among the teaching competencies of the science teachers regarding their sex, age, highest educational attainment, and years in service suggests a degree of consistency and uniformity in their skills and capabilities. In this study, teachers strongly agreed that they had behaved professionally at work. Their teaching enthusiasm and clear voices, accurate intonations, and adequate grooming are evident. They taught with confidence, creativity, leadership, and initiative. Teachers were efficient, encouraged student participation, and provided supportive learning experiences. They created appropriate learning objectives, course materials, student tasks, and rubrics. They correctly assessed students' needs and talents to overcome learning challenges. Teachers used different tactics, motivational techniques, and praise for student achievements. Teachers assessed their aims and used various incentive methods to instruct.

Meanwhile, the study found that the MPS of the students in science is 50.25%. This value is close to the 26 – 50% quartile range, indicating a lower average. It is most likely congruent with the PISA 2022 result, where the scientific literacy among Filipino students was significantly lower compared to the other participating nations, as Chi (2023) and OECD (2023) reported. This highlights the circumstances surrounding the country's curriculum. The students' low average achievement shows low scientific literacy. The students appear to lack the knowledge, abilities, and understanding to evaluate scientific information critically. They may have trouble understanding scientific principles, inquiry, and knowledge. Due to this weakness, they may struggle to make scientifically relevant decisions in an increasingly complicated and technology-driven world.

In this study, the lack of correlation between the competencies influencing the science teachers' performance and the students' MPS stipulates that students' academic achievement and level of engagement were not influenced by the teachers' personal skills, management skills, educational planning, teaching effectiveness, and professionalism. This contrasts Abudu and Gbadamosi (2014) and SACE (2010), implying a correlation between the teachers' abilities and effectiveness and students' achievement. It does not mirror that quality science teachers affect students' science learning, as Spaul (2013) and Tsanwani et al. (2014) asserted. This result suggests that the effectiveness of teachers, as measured by their competencies, does not align with or predict the academic success of students in science. However, it is essential to recognize

that student achievement is a multifaceted outcome influenced by various interconnected elements. While teaching competencies are undoubtedly crucial, the lack of correlation could stem from various factors, underscoring the complexity of educational outcomes and highlighting the need to explore additional factors contributing to students' science achievement beyond the teachers' competencies.

Conclusions

The effectiveness of a science teacher in enhancing scientific literacy depends on their competence and ability to inspire and engage their students in the subject. This study assessed the teaching competencies influencing primary science teachers' teaching performance relative to their students' academic achievement in science. It has been identified that teachers strongly agreed that professionalism is the primary teaching competency influencing their performance in science education. Likewise, the teachers strongly agreed regarding the other competencies of personal skills, teaching effectiveness, educational planning, and management skills. In general, it was determined that there were no significant differences among the teaching competencies that influenced the performance of science teachers regarding their sex, age, highest educational attainment, and years in service. Students' academic achievement in science was evaluated as below average, indicating a lower performance expectation. Conclusively, the study found no correlation between the teaching competencies and students' academic achievement in science. These findings offer significant perspectives on the elements that impact the quality of primary science education. Understanding teaching competency is essential for developing informed pedagogical approaches that empower teachers to create engaging and successful student learning experiences and academic achievement.

Based on the study's findings, the science teachers' competence implies a multifaceted proficiency beyond mere scientific content knowledge. They possess the skills to design and deliver practical science lessons, adapting their approach to diverse learning styles. Their pedagogical skills are evident through implementing diverse teaching methods fostering student engagement and understanding. They have better personal qualities, are responsible, and excel in teaching and classroom management. They can create an atmosphere conducive to learning by effectively promoting student participation and managing behavior. They actively seek opportunities to enhance their teaching techniques and integrate relevant technologies. The lack of correlation between teaching competencies and academic achievement suggests that despite possessing the necessary skills and knowledge, teachers may need help translating their competencies into tangible improvements in students' academic performance. Addressing this disassociation requires a comprehensive examination of assessment methods, curriculum design, and the broader educational context to ensure that teaching competencies align with and positively impact student learning outcomes.

Although the research has yielded valuable findings, various factors and limitations are to be considered when evaluating the constraints of this study. The coronavirus disease (COVID-19) pandemic has caused abrupt academic constraints in the district, affecting teaching and learning over the past few years. Even though regular classes had already been pursued, the pandemic may have affected teachers' responses and students' performances. Moreover, with the small number of science teacher participants in the district, the result does not represent a larger population. Nonetheless, the researchers still perceive that a competent, passionate, and

knowledgeable science teacher plays a vital role in shaping students' scientific literacy, attitudes, and abilities regarding understanding and appreciating the world through a scientific lens.

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CAMPUS VOICES: UNIVERSITY STUDENTS' AWARENESS OF GENDER-BASED VIOLENCE AGAINST WOMEN, GIRLS, AND CHILDREN

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Abstract: *Gender-based violence (GBV), violence against women and girls (VAWG), and violence against women and children (VAWC) are global problems and harmful acts disproportionately affecting women and girls, including children. These pervasive issues encompass forms of physical, sexual, psychological, and socioeconomic violence. This study aimed to determine the degree of GBV awareness among university students. It also aimed to explore the differences in their GBV awareness when grouped according to sex and age. The study involved 112 students from Ifugao State University (IFSU) – Tinoc Campus, Ifugao, Philippines. Quantitative analysis was done on gathered data using a self-developed questionnaire. Results show that the students were extremely aware of all the forms of GBV. They were more aware of physical violence, followed by sexual, psychological, and socioeconomic violence. It indicates progress in societal attitudes and educational efforts, suggesting that the students were informed, engaged, and sensitive to GBV issues. Generally, there were no significant differences in GBV awareness among the students according to sex and age. Conclusively, the researchers encourage continuing ongoing efforts in education, advocacy, and commitment to translate this awareness into tangible steps towards a more equitable and violence-free society to create lasting positive change.*

Keywords: *Gender-based violence (GBV), University Students, Violence Against Women and Girls (VAWG), Violence Against Women and Children (VAWC)*

Introduction

Acts of violence toward women, girls, and children are an extensively and deeply entrenched societal issue that transcends socioeconomic, cultural, and geographical boundaries. It encompasses a spectrum of abuses that infringe upon the basic human rights and dignity of women, girls, and children. This alarming phenomenon reflects power imbalances and ingrained gender inequalities that persist in various societies worldwide. The consequences of violence affecting the women, girls, and children population are far-reaching, affecting the immediate victims and also undermining the fabric of communities and hindering societal progress. Addressing this multifaceted challenge demands a comprehensive approach that includes social awareness campaigns, legal reforms, and a collective commitment to dismantling the deeply rooted structures perpetuating this issue.

Gender-based violence (GBV) is a dense violation of human rights and a potentially lethal concern for health and safety (UNHCR, 2023). It encompasses any form of violence inflicted

upon an individual or a collective based on their actual biological sex, perceived sexuality, gender, and gender identity (Council of Europe, 2023a; European Institute for Gender Equality, 2023; Krantz & Garcia-Moreno, 2005). GBV consists of threats of violence, manipulation, coercion, and the infliction of sexual, physical, emotional or psychological, and economic damage, either privately or publicly (Council of Europe, 2023a; European Commission, n.d.; UNHCR, 2023). It affects both females and males, but the majority of individuals who encounter such violence are females, particularly women and girls (European Institute for Gender Equality, 2023). Violence against women (VAW), more often called violence against women and girls (VAWG), is a more specific form of GBV. The United Nations defines it as "any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life" (United Nations, 1993).

GBV and VAWG are frequently used synonymously, as it is commonly recognized that the majority of GBV is perpetrated against women and girls, predominantly by men (Council of Europe, 2023; European Institute for Gender Equality, 2023). However, in most cases, the inclusion of the gender-based aspect is crucial, as it underscores the fact that numerous manifestations of violence targeting women and girls originate from power differentials that exist between males and females (European Institute for Gender Equality, 2023; Krantz & Garcia-Moreno, 2005). In this case, some literature uses the same concepts of GBV and VAWG, noting that the terms are used interchangeably. These infringements include threats of such acts, using force to make women and girls do things they do not want to do, and depriving them of rights and economic and social benefits (Akudolu et al., 2023). In this study, the researchers have used GBV, VAW, and VAWG synonymously since most literature presented that women and girls commonly experience GBV.

Today, it is widely conceded that GBV or VAWG is a severe global human rights violation and health issue (Akudolu et al., 2023; Dlamini, 2020; Gaba et al., 2022; Gordon et al., 2022; Krantz & Garcia-Moreno, 2005; Mittal & Singh, 2020; Patel et al., 2021; Tsapalas et al., 2020). It impacts every 1 in 3, or 30% of women in their lifetime (World Bank, 2019; World Health Organization, 2021). Throughout their lives, these women have encountered instances of physical and/or sexual violence from their intimate partners, as well as instances of sexual violence from non-partners, with the majority of such incidents being perpetrated by their intimate partners. Further, 27% of women aged 15 - 49 who have been in a romantic partnership disclose experiencing physical and/or sexual assault at the hands of their intimate partner. An additional 6% of women disclose experiencing sexual assault at the hands of an individual other than their intimate partner (World Health Organization, 2021).

GBV and VAWG occurrences escalated during the coronavirus (COVID-19) lockdown, where several women and girls were assaulted by their intimate partners (Akudolu et al., 2023; Dlamini, 2020; Gaba et al., 2022; Gordon et al., 2022; Mittal & Singh, 2020; World Health Organization, 2021). Reduced access to services, the disruption of social and protective networks and stress have all contributed to an increased vulnerability of women and girls to violence (Mittal & Singh, 2020). The acts of violence against children have also surged. Some children were subjected to maltreatment by their parents or other caregivers in every nation. Aside from neglect, they have experienced physical, psychological, and sexual abuse (Gordon et al., 2022; Krantz & Garcia-Moreno, 2005). The pandemic lockdown exacerbated the

susceptibility of children and women to sexual violence and harassment while attempting to obtain essential resources (Mittal & Singh, 2020).

Literature Review

Forms of Gender-based Violence (GBV)

Physical violence is manifested through overtly hostile actions such as slapping, kicking, beating, biting, or even strangulation and the use of weapons. Occasionally, women sustain severe injuries and, in certain instances, succumb to their injuries. It can cause distress, health issues, and death (Akudolu et al., 2023; Ellsberg, 1999; European Commission, n.d.; Krantz & Garcia-Moreno, 2005). According to Dahal et al. (2022), most of their women participants were physically assaulted by drunk men. These women also encountered battered wives, arguments, and verbal violence. Physical violence in South Asia may also be caused by cultural and institutional discrimination against women (Ali et al., 2023).

Psychological, emotional, or mental abuse includes separating a woman from her loved ones, degrading or shaming her, limiting her finances, threatening her valuables, or participating in violence. It also includes psychological manipulation and abuse such as controlling coercion. This sort of violence has several aspects, making cross-cultural and cross-national definitions difficult (Akudolu et al., 2023; European Commission, n.d.; Krantz & Garcia-Moreno, 2005; Watts & Zimmerman, 2002). Every sort of violence has a psychological component because it aims to harm another's honor and dignity. Additionally, some forms of violence cannot be defined as GBV, resulting in pure psychological violence. It can include intimidation, deception, withholding, detention, purposeful apathy, and contempt for others (Council of Europe, 2023b).

Sexual violence includes physical force, threats, and intimidation, as well as forced participation in humiliating sexual behaviors and refusal to use contraception or prevent sexually transmitted illnesses. Relatives, romantic partners, friends, and strangers can sexually attack young girls, teenagers, and adult women. Gang rapes are examples of sexual violation (Akudolu et al., 2023; European Commission, n.d.; Krantz & Garcia-Moreno, 2005). Rape and attempted rape were identified by Dahal et al. (2022) as incidents of sexual violence committed by powerful and wealthy males against low-status victims. Financial discussions rather than legal action settled most rape cases. Child marriage, population sex inequality, and neglect of women's health are still frequent in South Asia (Ali et al., 2023).

Socioeconomic violence typically denies women economic and social chances, making them more vulnerable (Akudolu et al., 2023). Women's unemployment rates have risen and remained higher. Systemic barriers and labor force social and technical developments may be to blame (World Economic Forum, 2022). Since childcare facilities and schools were shuttered during the epidemic, mothers reported more childcare (World Economic Forum, 2022). Asia has persistent socioeconomic gaps. Despite recent economic progress and education gains, South Asia still falls behind other regions in female labor inclusion (Ali et al., 2023). Due to their unpaid work, women are often given riskier, low-paying occupations, reducing their workforce participation. Employment and social protection are difficult for women and girls. Cultural behaviors hinder health and nutrition benefits. They still struggle to become self-sufficient and own property (Ali et al., 2023).

Overview of Gender Equality in the Philippines

The Philippine culture is patriarchal. Traditional gender norms in the country place males as household heads and women as caregivers. Traditionally, men have been expected to earn money and make decisions, while women have done housework. Though women's rights are becoming more recognized, these archaic systems remain. The Philippines has reduced gender inequality, but problems remain. Several organizations and initiatives fight patriarchy, promote gender equality, and empower women in the country. Country gender and development (GAD) programs underpin most women's empowerment efforts. GAD seeks to include gender equality in development decisions, transform society's economic, political, and social structures, and question gender norms. It stresses women organizing and participating in politics to strengthen their position (Official Gazette, 2009; Philippine Commission on Women, 2023a).

In observance of the Sustainable Development Goals (SDGs), the Philippines has pushed gender equality and awareness for years. The United Nations' (UN) 2015 SDGs sought "to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity" (United Nations, n.d.; UNDP, 2023). The nation's gender equality commitment is rooted in SDG 5. SDG 5 seeks true gender equality for women and girls in all aspects of life. VAWG elimination, child and forced marriage prevention, equitable leadership involvement and progress, and global sexual and reproductive health liberties are its goals (Philippine Commission on Women, 2023b). Regional rankings place the country second in East Asia and the Pacific for gender equality thanks to GAD and SDG 5 efforts (World Economic Forum, 2022). It means the Philippines has created a society that promotes gender equality in rights, opportunity, and treatment. This accomplishment covers education, work, politics, healthcare, legal rights, cultural standards, and societal expectations.

Gender-based Violence (GBV) in the Philippines

The Philippines protected women and children in response to GBV and VAWG. Children are "those who are below eighteen (18) years of age or over but are unable to fully take care of themselves or protect themselves from abuse, neglect, cruelty, exploitation, or discrimination because of a physical or mental disability or condition" (Official Gazette, 2009; Philippine Commission on Women, 2010). Republic Act (R. A.) 9262, the 2004 Anti-Violence Against Women and their Children (VAWC) Act, was passed due to the ongoing violence against women and children. VAWC in any forms is a public felony. The law defined VAWC as "any act or a series of acts committed by any person against a woman who is his wife, former wife, or against a woman with whom the person has or had a sexual or dating relationship, or with whom he has a common child, or against her child whether legitimate or illegitimate, within or without the family abode, which result in or is likely to result in physical, sexual, psychological harm or suffering, or economic abuse including threats of such acts, battery, assault, coercion, harassment or arbitrary deprivation of liberty" (Official Gaze, 2004).

Despite the abundance of legal bases protecting women and children, GBV persists in the country. The National Demographic and Health Survey (NDHS) report of 2017 by the Philippine Statistics Authority (PSA) determined that one in four, or 26% of Filipino women aged 15 - 49, were victims of physical, sexual, and emotional violence. Among these, 14% of

the women reported being subjected to physical violence, 20% to emotional violence, and 5% to sexual violence at the hands of their current or former spouse or partner (Philippine Statistics Authority, 2018). One contributing factor to the vulnerability of Filipino women to violence is the accusation that they are neglectful of their marital responsibilities, leading to physical abuse by their spouses. One reason is that the majority of women are being subjected to sexual assault as a result of their flirty behavior. Reports of workplace sexual harassment can occur due to physical attraction (Philippine Commission on Women, 2023a).

During the pandemic lockdown, GBV cases increased, like in other countries. Abuse during the pandemic was linked to stress-related financial issues (Baron, 2021; Commission on Human Rights, 2022; Lagsa, 2022; Valdez et al., 2022). Many people were isolated during pandemic lockdowns and quarantines. Victims were forced to stay home with their perpetrators, increasing violence risk. Victims had trouble getting aid due to mobility and support issues. Financial hardship and uncertainty may have intensified home tensions, increasing violence. Job losses, economic insecurity, and financial strain can cause household power imbalances and control challenges. The pandemic's worry and fear may have strained family connections. According to Basuil et al. (2020), the pandemic has affected women greatly. For instance, all firms closing has jeopardized the livelihoods of highly represented women in manufacturing, tourism, retail, and hospitality. Due to economic hardships, most Filipinos had low incomes, which increased online sexual exploitation of children and women. The epidemic has restricted women's access to sexual, reproductive, and health services, including psychological support and counseling (Basuil et al., 2020; Commission on Human Rights, 2022).

Many abuse instances went unreported and unprosecuted (Commission on Human Rights, 2022; Lagsa, 2022; Pabelonia, 2023). Many female victims were hesitant to sue their offenders, usually their spouses or male partners. Many victims only attend VAWC counters in local barangays to solicit help, not to report the incident to the police. They believe their husbands or partners will change their minds. Some women cannot admit to spouse physical or sexual abuse. They fear controversy (Lagsa, 2022) and are embarrassed to talk about their experiences (Philippine Commission on Women, 2023). Many battered women depend on their husbands for financial support and cannot cope without them. They stay silent and tolerate abuses because their children need care (Lagsa, 2022).

The involvement of schools and teachers to address gender issues and promote gender equality (Canuto & Espique, 2023) in the Philippines in the implementation of the Anti-VAWC Act of 2004 recognizes the crucial role of the educational sector. Academes can prevent school-related gender-based violence (SRGBV). SRGBV covers all student violence and abuse. It stems from gender stereotypes and unequal power relations and harms both offenders and victims. This issue affects human rights and education because it violates fundamental rights and hinders learning (UNGEI, 2023). Zain (2012) found university students comprehend GBV. If students know, GBV will decrease. Being aware of GBV protects students from violence. It implies that academic institutions are vital to GBV awareness (Lahelma, 2014; Zain, 2012). GBV awareness allows kids to recognize and prevent abuse. Knowing the indications and effects of GBV helps people respond early and prevent additional harm.

Research Gap

Although it has a worldwide impact, GBV is still significantly underrepresented due to stigma and societal pressures (Mittal & Singh, 2020). There is a need to obtain a deeper understanding of the extent and characteristics of various types of violence against women, girls (Krantz & Garcia-Moreno, 2005), and children. There is a lack of exploration of students' awareness of GBV among universities, especially in the locality. It is believed that university students who are well-informed about GBV are more likely to contribute to fostering respectful and safe communities in their future workplaces and personal lives. They can contribute to broader social change and promote more equitable gender equality and equity. Further, documenting, evaluating, and building knowledge surrounding GBV are vital elements to mitigate its forms of violence (Krantz & Garcia-Moreno, 2005).

Research Aim and Research Questions

The study aims to determine the degree of awareness regarding GBV among university students. Additionally, it aims to explore the differences in the students' GBV awareness degree when grouped according to their sex and age. The following questions guide the conduct of the study:

1. What is the extent of GBV awareness among university students?
2. Are there significant differences in the extent of GBV awareness among university students in terms of sex and age?

Significance of the Study

A study on university student GBV awareness can inform effective prevention, support, and institution-wide initiatives. Understanding student awareness helps create focused educational programs that promote consent, respect, and gender equality. The researchers anticipate this study would help educational institutions identify knowledge gaps and areas for improvement, enabling them to prevent GBV, intervene early, and support victims. University students' understanding of GBV helps create a safer, more inclusive atmosphere, a collective commitment to fighting it, and a culture of mutual respect and well-being.

Methodology

Research Design

The study employed a quantitative approach to determine the degree of GBV awareness among university students and the significant differences in their profiles. The study systematically collected and analyzed numerical data from the students' responses to attain the research aims and answer the research questions. A quantitative approach is characterized by its structured and standardized data collection methods, allowing for measuring specific variables and applying statistical techniques for data analysis (Creswell, 2009). This study employed the survey research method to record phenomena in real-time. This technique is employed to obtain data samples from respondents who are representative of a given population (Williams, 2007) at the university level. The study utilized a self-developed closed-ended survey.

Participants

The study involved 112 students officially enrolled at Ifugao State University (IFSU) – Tinoc Campus, Ifugao, Philippines. They were selected through purposive sampling. The students were enrolled under the Teacher Education and Agriculture Programs during the second semester of 2022 – 2023. The students included first-year students to senior levels, all of whom were of the legal age of 18 and above. As presented in Table 1, the student participants comprised 25% ($N = 28$) males and 75% ($N = 84$) females. A majority of students ages 20 - 24 years old at 74.11% ($N = 83$) consisted of the population, followed by 19 years old and below at 14.28% ($N = 16$), 25 - 29 years old at 9.82% ($N = 11$), and 30 - 34 years old at 1.79% ($N = 2$). The selection of the university students was conceived in response to the institution's call to conduct GAD-related studies in reflection of the country's Anti-VAWC Act of 2004 and the context of SDG 5: Gender Equality. The students' year levels were not considered a variable since some had irregular statuses where they were enrolled in subject courses not per their curriculum. They were enrolled in specific subject courses across year levels to meet their target units for graduation. Differences based on students' course programs were not also involved. The researchers focused on assessing the university students' degree of GBV awareness in general and did not necessitate consideration of the course programs. No other criteria were involved in the selection process of the students.

Table 1: Demographic Profiles of the Respondents

Profiles	$N = 112$	Percentage
1. Sex		
a. Male	28	25.00%
b. Female	84	75.00%
2. Age		
a. 19 years old and below	16	14.28%
b. 20 - 24 years old	83	74.11%
c. 25 - 29 years old	11	9.82%
d. 30 - 34 years old	2	1.79%

Instrument

The researchers self-developed the survey questionnaire used in the study. The survey's content and structure were based on the Anti-VAWC Act of 2004 and the different forms of GBV, as discussed in the literature. The different violence and abuses in the survey were also based on the reported cases from the locality's police stations. This led to the structuring of 30-item statements categorized under forms of GBV regarding sexual, physical, psychological, and socioeconomic violence. The questionnaire was evaluated by three experts in VAWC from the local government unit, including police officers and social workers. The computed validity coefficient was .94 using Aiken's Validity Coefficient, indicating that the questionnaire items were valid. A pilot test involving 30 student participants from a different university campus was done. As a result, the questionnaire items were reliable, with an overall Cronbach's Alpha of .982 and excellent internal consistency. The survey questionnaire comprised of two sections. The first section requires the students' sex and age. The last section contained the 30-item statements regarding GBV. To measure students' GBV awareness, this section used a 4-point Likert scale: 4 = Extremely Aware (EA), 3 = Moderately Aware (MA), 2 = Slightly Aware (SA), and 1 = Not at all Aware (NA). The questionnaire was reproduced in printed copies.

Procedure

The researchers presented first the study's proposal to the university. This allowed the presentation of the study's objectives, integration of recommendations from experts on VAWC, and modification of the study's structure. Approval from the university officials followed through with conducting the study. Once approved, informed consent was sought from the selected student participants. The informed consent discussed the study's specific aims and an overview of the study's conduct. It included the expected duration of the study and the time commitment required from the students. Potential risks associated with answering the survey, such as distress, anxiety, or emotional discomfort, were presented. For this case, the researchers have collaborated with the university's guidance center to mitigate potential risks and seek appropriate action. Benefits among the students were highlighted, such as determining support systems and university-wide interventions. Confidentiality of students' personal data and responses and their voluntary participation were emphasized. They have the right to withdraw from the study without facing any negative consequences. Contact information of the researchers was included for the students' perusal if they had questions or concerns during the study. With the approval of the students, the researchers personally provided the survey questionnaires. This allowed the researchers to explain the content of the survey, directly cater to the students' queries, and immediately respond to any potential risks the students have experienced. After collecting all the data, the researchers compiled the students' responses in a spreadsheet using one of their personal computers. The answered questionnaires were stored and kept by the researchers. Presentation of data in tables, interpretation, and analysis of results followed through.

Data Analysis

The data on the extent of students' GBV awareness was analyzed using descriptive and inferential statistics. Frequency count and percentage were used to determine the specific profiles of the students. Mean (M) and standard deviations (SD) were used to determine the extent of students' GBV awareness. A T-test was used to compare the differences in GBV awareness when the students were grouped according to sex. Likewise, analysis of variance (ANOVA) was used regarding the students' age. A statistical range to analyze the students' responses included 3.50 - 4.00 = Extremely Aware (EA), 2.50 - 3.49 = Moderately Aware (MA), 1.50 - 2.49 = Slightly Aware (SA), and 1.00 - 1.49 = Not at all Aware (NA).

Ethical Considerations

The researchers presented the study and sought approval from the university's ethics review committee. The conduct of the study committed to upholding the highest ethical standards to ensure the well-being and rights of the student participants. Approval from the university was requested, and informed consent was obtained from all participants, clearly outlining the purpose of the study, procedures involved, potential risks, and their right to withdraw at any point without facing negative consequences. Participants were assured of the confidentiality and anonymity of their data. All efforts were made to secure and protect participants' sensitive information. The study was conducted in compliance with relevant laws and regulations and the university's research protocol.

Results

Results in Table 2 show that the students were extremely aware of all the forms of GBV. Though all forms indicated extreme awareness, mean data shows that students were more aware of physical violence compared to the others. It is followed by sexual violence and psychological violence. Socioeconomic violence received the lowest mean value.

Table 2: Extent of Gender-based Violence (GBV) Awareness of Students

Forms of Gender-based Violence (GBV)	<i>M</i>	<i>SD</i>	Level
a. Physical Violence	2.79	0.97	Extremely Aware
b. Sexual Violence	2.72	0.19	Extremely Aware
c. Psychological Violence	2.68	0.15	Extremely Aware
d. Socioeconomic Violence	2.56	0.15	Extremely Aware

The difference in the extent of GBV awareness among the students according to sex is presented in Table 3. The data shows no significant differences between the male and female students. Both male and female students perceived the same awareness regarding the forms of GBV as to physical, sexual, psychological, and socioeconomic violence. It is also noted that females perceived higher extreme GBV awareness compared to males. Additionally, both sexes are extremely aware of the physical, psychological, and socioeconomic violence. The males have moderate GBV awareness than females in terms of sexual violence.

Table 3: Differences in the Extent of Gender-based Violence (GBV) Awareness Among the Students According to Sex

Forms of Gender-based Violence (GBV)	Male		Female		<i>t</i> -value	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
a. Physical Violence	2.67	1.10	2.82	0.91	-.639 ^{ns}	.527
b. Sexual Violence	2.39	1.25	2.70	0.83	-1.27 ^{ns}	.214
c. Psychological Violence	2.58	0.42	2.70	0.83	-.738 ^{ns}	.464
d. Socioeconomic Violence	2.53	0.54	2.70	0.84	-.945 ^{ns}	.350

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

In Table 4, results indicated that there is a significant difference in the GBV awareness among the students about sexual violence when grouped according to age. There are no significant differences in the extent of awareness about the physical and psychological forms of GBV. There is also no significant difference across the students' ages in terms of socioeconomic violence. Further, results indicate that the students have extreme awareness regarding all forms of GBV across all age groups.

Table 4: Differences in the Extent of Gender-based Violence (GBV) Awareness Among the Students According to Age

Forms of Gender-based Violence (GBV)	19 y/o & below		20 – 24 y/o		25 – 29 y/o		30 – 34 y/o		<i>f</i> -value	<i>p</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		

a. Physical Violence	2.69	1.14	2.81	0.94	2.73	1.01	3.00	1.41	0.110 ^{ns}	.954
b. Sexual Violence	2.90	0.35	2.70	0.17	2.68	0.26	2.50	0.10	5.766 [*]	.001
c. Psychological Violence	2.94	0.26	2.65	0.15	2.60	0.22	2.59	0.20	0.628 ^{ns}	.598
d. Socioeconomic Violence	2.74	0.30	2.54	0.11	2.52	0.31	2.58	0.20	0.307 ^{ns}	.821

Note: * = significant ($p < .05$); ns = not significant ($p > .05$)

Discussion

The determined level of extreme awareness among university students generally suggests that they were highly informed and sensitive toward the forms of GBV. It confers with Zain's (2012) verdict that university students comprehend GBV issues. It may suggest that they were actively engaged in understanding and addressing issues related to GBV and VAWC. It reflects the Philippines' acknowledgment as the most gender-equal country in Asia by the World Economic Forum (2022). This level of awareness may be attributed to the country's GAD and SDG 5-related activities and programs and the strict implementation of the Anti-VAWC Act of 2004 (Philippine Commission on Women, 2023a).

A higher level of GBV awareness among the students may also be attributed to the country's various measures and mechanisms of anti-VAWC activities as underpinned by the Philippine Commission on Women (2023a). For instance, the Philippine government has implemented the yearly conduct of the 18-Day Campaign to End VAW from November to December. It mandates agencies, including the educational sector, to raise awareness of the problems of violence and the elimination of all forms of VAWC and GBV. In the institution, anti-VAWC activities include seminars, workshops, brochures, strengthening guidance services, and the inclusion of GAD and SDG 5 activities in the curriculum. The non-significant differences in the extent of GBV awareness among the students according to their sex and age indicate that awareness of GBV is relatively consistent across both sexes and different age groups among the student participants. It could be a positive sign, indicating that educational efforts and awareness campaigns have successfully raised GBV and VAWC awareness. It may indicate that the university initiatives addressing GBV effectively reached and resonated with students of both sexes and age groups. It implies that efforts to raise awareness are inclusive and appeal to many students. The lack of significant differences may also suggest that the students, regardless of their sex or age, share a common understanding and recognition of the importance of addressing and preventing GBV and VAWC.

The study found that there was a moderate perceived sexual violence awareness among the males compared to females. This does not, however, imply that males are inherently less aware of sexual violence compared to females. Awareness of sexual violence can vary widely among individuals of any gender, and various factors influence it. One factor can be due to societal norms and culture, as shared by Ali et al. (2023), where males are expected to be strong, stoic, and less vulnerable, which can discourage sensitivity toward sexual violence. They may have no personal experience or witnessed sexual violence, causing them to be less aware of its prevalence and impact. As Mittal and Singh (2020) indicated, there is also a stigma associated

with discussing sexual violence. Individuals, regardless of gender, may feel shame or discomfort addressing the issue, as Lagsa (2022) and the Philippine Commission on Women (2023a) reported, hindering open conversations and awareness of sexual violence. It is essential to approach discussions about sexual violence with sensitivity and recognize that awareness is a complex and multifaceted issue. Similar to Dahal et al.'s (2022) results, battery or partner beating is the prominent physical violence focused in the study's questionnaire. Thankfully, physical violence towards women and children, as influenced by culture and social norms as determined by Ali et al. (2023), is no longer pervasive in the locality. Related to the abuses given by Akudolu et al. (2023), Dahal et al. (2022), European Commission (n.d.), and Krantz and Garcia-Moreno (2005), the acts of lasciviousness, rape, treating women as sex object, sexual harassment, and prostituting the woman were included in the survey under sexual violence. The survey also indicates coercing a woman to view explicit publications and attend indecent performances, as well as compelling her to perform indecent acts and produce films, physically attacking the sexual parts of a victim's body, and imposing acts causing or attempting the woman to engage in sexual activity by coercion, threat of force, physical or threat of physical harm.

Aside from the psychological acts of GBV listed by the Council of Europe (2023b) and European Commission (n.d.), the survey included acts for public ridicule or humiliation, inflicting or permitting physical, sexual, or psychological harm on the victim at the hands of a family member, property damage, repeated verbal abuse, unlawful or unwelcome deprivation of visitation and guardianship rights of children, and stalking. Under socioeconomic violence, the survey included prevention from engaging in any legitimate business, occupation, and profession, as based on Akudolu et al. (2023), Ali et al. (2023), and World Economic Forum (2022). The survey added financial resource deprivation or the potential for financial resource deprivation, deprivation of the right to the use and enjoyment of community or conjugal properties, destruction of household properties, and control of victims' money or property.

With the students' extreme awareness of GBV, it means that they possess a greater understanding of the prevalence, dynamics, and impact of violence that is rooted in gender inequality. It affirms that the students understand that GBV and VAWC encompass a broad range of abuse, including physical, sexual, psychological, and socioeconomic violence. They may recognize the existence of violence in various settings, not only in the institution but also in the community. Their awareness may involve an understanding of the underlying factors contributing to GBV, such as power imbalances (Dahal et al., 2022), societal norms (Ali et al., 2023), and harmful gender stereotypes (UNGEI, 2023). Students may be aware that violence often results from unequal power dynamics between genders. Students with higher awareness are more likely to empathize with survivors of GBV and understand the challenges they face. They may be supportive of efforts to help survivors, whether through advocacy, counseling, or other means. The students' awareness may include knowledge of available resources, support services, and reporting mechanisms for GBV. This knowledge empowers students to seek help for themselves or others and contributes to a safer and more supportive environment. As Zain (2012) emphasizes, this eliminates their chance of falling as victims.

Conclusion

GBV is a global problem and harmful act that is perpetrated against an individual, disproportionately affecting women and girls, including children. This pervasive issue encompasses a spectrum of physical, sexual, psychological, and socioeconomic abuses. It not only inflicts immediate physical and emotional harm but also perpetuates a cycle of fear, silence, and disempowerment, hindering victims' ability to participate in social, economic, and political aspects fully. Addressing GBV necessitates multifaceted efforts, including legal reforms, education, awareness campaigns, and the promotion of gender equality to challenge ingrained social norms and foster a safer and more equitable society.

The high level of awareness regarding GBV among students is a positive indication of progress in societal attitudes and educational efforts. When students exhibit extreme awareness, it suggests that they are informed, engaged, and sensitive to the issues surrounding GBV. It indicates that educational initiatives, awareness campaigns, and cultural shifts have reached a diverse student population. Students who are well-informed about GBV are likely to be more understanding of the challenges faced by survivors and may actively contribute to creating a safer and more inclusive environment. This can foster a culture of respect, empathy, and zero tolerance for gender-based violence. While extreme GBV awareness is generally positive, it is essential to ensure that this awareness is channeled into constructive actions and efforts. It is also crucial to recognize that awareness alone may not be sufficient to address the root causes of GBV. Concrete actions, policy changes, and cultural shifts are often necessary to create lasting change. Ongoing efforts are needed to translate this awareness into tangible steps towards a more equitable and violence-free society. Continued education, advocacy, and a commitment to fostering a culture of respect and equality are essential for building on the foundation of awareness and creating lasting positive change.

The study's findings contributed to literature exploring students' awareness of GBV among universities. It also provided crucial insights for targeted educational programs and activities enhancing GBV awareness. Conversely, the study only involved a small number of students and did not represent a larger population. Other demographic profiles of the students, such as year level and course program, were not included. Lastly, the acts of violence in the study were based on a specific societal and cultural context, which may not be applicable to populations with different social and cultural norms and practices.

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CYBERSECURITY KNOWLEDGE AND PRACTICES: A SURVEY OF STUDENTS AND STAFF AT POLITEKNIK MERSING

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Abstract: *This research aims to assess the level of cybersecurity awareness among students and staff at Politeknik Mersing through a survey study. The survey questionnaire covered various aspects of cybersecurity knowledge and behaviors, including email practices, password management, understanding of phishing, and awareness of different security concepts. A total of 136 respondents responded to the survey, providing valuable insights into their cybersecurity practices. The results revealed a mixed level of cybersecurity awareness among the respondents, with strengths in some areas and gaps in others. Notable findings included risky behaviors like opening emails from unknown senders and adopting the same passwords across multiple platforms. The findings highlight the importance of implementing comprehensive cybersecurity awareness programs at Politeknik Mersing to address the identified gaps and promote safe online practices. Tailored educational initiatives and ongoing training are recommended to enhance cybersecurity knowledge and encourage responsible behaviors. By strengthening cybersecurity awareness, Politeknik Mersing can better protect sensitive data and mitigate the risks associated with cyber threats. Further research is recommended to evaluate the effectiveness of specific cybersecurity education interventions and their long-term impact on individuals' behavior and attitudes.*

Keywords: *Cybersecurity, Security Awareness, Cyber Threat, Cybersecurity Practices*

Introduction

Cybersecurity has become a critical concern in the age of digitalization and technological advancements nowadays. Being aware of the dangers of browsing the web, checking email and interacting online are all components of cybersecurity awareness. (Jack Koziol, 2022) Politeknik Mersing as an academic institution in managing and safeguarding valuable data. As an academic institution, Politeknik Mersing collects, stores, and processes a wide range of data, including student records, research findings, administrative information, and more. This data holds significant value, both in terms of its confidentiality and its potential impact if compromised.

Due to the sensitive nature of the data held by academic institutions, it's become attractive targets for cyber threats. Cybercriminals may seek to gain unauthorized access to this valuable

information for various malicious purposes, such as identity theft, financial fraud, corporate espionage, or disrupting institutional operations. It is crucial for students and staff to be aware of cybersecurity best practices to safeguard their personal information and institutional data.

This research aims to assess the level of cybersecurity awareness among students and staff in Politeknik Mersing based on the collected survey data during The Securetech Week 7th till 13th May 2023. The rise in cyber threats, such as phishing attacks, data breaches, and identity theft, highlights the importance of cybersecurity awareness and proactive security measures. In order to effectively address these challenges, it is essential to understand the level of cybersecurity awareness among different demographic groups in Politeknik Mersing.

The objectives of this research paper are to investigate the level of cybersecurity awareness among individuals based on their demographic characteristics. By examining the responses to a survey questionnaire, we aim to gain insights into the knowledge and behaviours of respondents regarding online security. This comparative analysis will allow us to identify variations in cybersecurity awareness programmes to be conducted for Centre of Technology (COT) in Politeknik Mersing.

To achieve these objectives, we collected data through a survey questionnaire that included both demographic questions and specific cybersecurity-related questions. The survey was distributed among a diverse group of respondents' totals of 136 respondents. The collected data analysed using appropriate statistical techniques to determine the level of cybersecurity awareness across different demographic groups.

Literature Review

Cybersecurity Definition

Referring to Oxford dictionary, cybersecurity means, security relating to computer systems or the internet, esp. that intended to protect against viruses or fraud. (Oxford English Dictionary, n.d.) Cybersecurity refers to any technology, measure, or practice for preventing cyberattacks or mitigating their impact. It protects individuals' and organizations' systems, applications, computing devices, sensitive data and financial assets against simple and annoying computer viruses, sophisticated and costly ransomware attacks, and everything in between.

The Importance of Cybersecurity Awareness

Cybersecurity awareness is an ongoing process of educating and training employees about the threats that lurk in cyberspace, how to prevent such threats and what they must do in the event of a security incident. (Spanning Cloud Apps, 2022) The need for cybersecurity awareness has gained prominence, and numerous studies have focused on understanding the factors that contribute to individuals' knowledge and behaviours in this domain.

One of the fundamental aspects of cybersecurity awareness is the ability to identify and respond to phishing attacks. Phishing is a deceptive practice where an assailant impersonates a reputable entity or person in various forms of communication, often through email. These attackers commonly utilize phishing emails to distribute malicious links or attachments that aim to

illicitly obtain sensitive information such as login credentials, account numbers, and other personal details from their targets. (Gillis, 2023) While users may acquire the skills to recognize phishing through training, the retention of relevant information diminishes rapidly without practical application. Currently, there is limited exploration into the longevity of the knowledge acquired, hindering a comprehensive understanding of the persistence of the impact of Phishing Education, Training, and Awareness (PETA) initiatives and the frequency with which users may need refresher training. (Orvila Sarker, 2024)

Password Security

Password security is another critical aspect of cybersecurity awareness. Effective password management practices, such as using strong and unique passwords, contribute significantly to overall online security. From the study on password behaviours, students demonstrate a deficiency in fundamental knowledge related to password management, phishing, and Two-Factor Authentication. It also revealed that both female and male responders are not aware of the concept of phishing emails, therefore urgent cybersecurity awareness program is needed to tackle the awareness problem. (Adamu A. Garba, 2020)

Influence of Demographic Factors ***Age***

The influence of demographic factors on cybersecurity awareness has also been examined in previous research. For instance, a study investigated the relationship between age and cybersecurity behaviours and the findings revealed that elderly users seem to exhibit a lower tendency to secure their devices compared to their younger counterparts. Nevertheless, the opposite trend was observed for other behaviours, as older users displayed a higher likelihood of creating secure passwords and demonstrating proactive risk awareness, including regular installation of updates. (Branley-Bell, 2022)

Gender

Gender has also been explored as a potential influencing factor in cybersecurity awareness. Research by (Daengsi, 2022) that were done to 71% of female respondent and 295 of male respondent, indicated that females from Gen X, which born around 1965 to 1980 and Gen Y, which born around 1981 to 1994 have a higher level of cybersecurity awareness of phishing than males. The study attributed this difference to variations in risk perception and the socialization processes that shape individuals' attitudes towards online security.

Education

The survey has explored the significance of educational backgrounds in shaping cybersecurity awareness, with a specific focus on Politeknik Mersing as an educational institution. The institution's community comprises individuals with diverse backgrounds, including students and staff with varying qualifications. Typically, students possess a minimum qualification of SPM or certification, while the staff exhibit a range of qualifications such as SPM, certification, diploma, bachelor's degree, master's degree, and doctorate. In China, a limited level of social education contributes to a diminished awareness of cybersecurity among the general public,

potentially exerting a negative influence on the cybersecurity awareness of university students. (Wilson Cheong Hin Hong, 2022) The findings highlight the importance of integrating cybersecurity education into academic curricula to equip individuals with the necessary skills and understanding.

In summary, the literature on cybersecurity awareness emphasizes the significance of educating individuals about various aspects of online security, such as phishing, password practices, and risk perception. Demographic factors, including age, gender, and educational qualifications, have been identified as potential influencers of cybersecurity awareness. Understanding these factors can aid in designing targeted interventions and awareness programs that cater to the specific needs and characteristics of different demographic groups.

Methodology

The data for this research paper was obtained through a survey questionnaire distributed to students and staff members of Politeknik Mersing during the Securetech Week 2023 organized by Cyber Range Academy Politeknik Mersing. This event was done through a week from 7th until 13th of May 2023. A total of 136 individuals participated in the survey and provided their responses to a series of questions related to cybersecurity. The questionnaire covered a range of topics, including respondents' demographic information such as age, gender, position, highest academic qualification, and department. Additionally, respondents were asked to share their perspectives and behaviours regarding various cybersecurity practices and scenarios.

Research Design and Approach

This research utilized a cross-sectional survey design to gather data on cybersecurity awareness among respondents. The survey was designed to assess respondents' knowledge and behaviours related to various aspects of cybersecurity. The cross-sectional design allowed for data collection at a specific point in time, providing a snapshot of cybersecurity awareness within the targeted population.

Sample Selection and Data Collection Procedure

The respondents in this study were selected from Politeknik Mersing, including students and staff members. The sample was chosen using a combination of convenience and random sampling techniques. The survey questionnaire was distributed to respondents during the Securetech Week 2023 event organized by the Cyber Range Academy Politeknik Mersing. Questionnaires were spread to the respondents and a total of 136 voluntarily participated to complete the survey, ensuring their willingness to participate and provide accurate responses.

Description of the Survey Questionnaire

The survey questionnaire consisted of a series of questions that aimed to assess respondents' cybersecurity awareness. The questionnaire covered topics such as email handling practices, response to requests for personal information, online shopping behaviours, knowledge of password characteristics, familiarity with phishing, password reuse habits, awareness of user agreements, understanding of HTTP and HTTPS, usage of debit/credit cards at outdoor

payment machines, knowledge of social engineering, work-related computer usage, understanding of DoS and DDoS attacks, download of free software/programs, usage of encryption methods, regular update of antivirus software, utilization of backup software, opinions on relying solely on technology for security, response to requests for sensitive information over the phone, importance of privacy policies and procedures, and accountability for information security awareness. The survey questions were selected based on instruments developed by other researchers on cybersecurity with a relevance surrounding factors. (Alharbi, 2021)

Demographic Information

Along with the cybersecurity-related survey questions, respondents were asked to provide demographic information, including age, gender, position, academic qualification, and department. This demographic data allowed for the examination of any potential relationships or differences in cybersecurity awareness based on these demographic factors.

By employing this methodology, the study aimed to gain insights into the cybersecurity awareness of respondents at Politeknik Mersing, contributing to the understanding of current knowledge and behaviours related to cybersecurity.

Results and Analysis

Demographic Characteristics of the Respondents

The survey included a total of 136 respondents from Politeknik Mersing. The age distribution of the respondents was as follows:

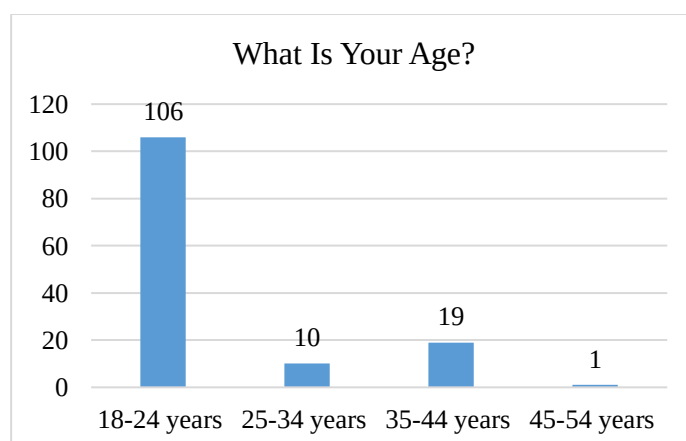


Figure 1: The Number of Respondents Dividing by Age

Figure 1 shows 106 respondents aged from 18 to 24 years old, 10 respondents aged from 25 to 34 years old, 19 respondents age from 35 to 44 years old, and 1 respondent age 45 to 54 years old.

In terms of gender of respondents, the result is as follow:

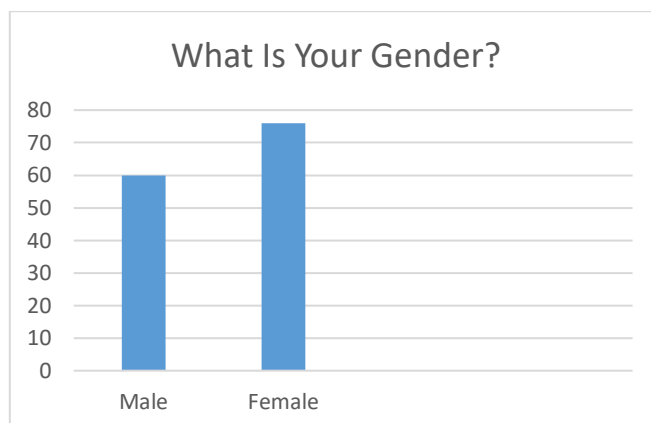


Figure 2: The Number of Respondents Dividing by Gender

From **Figure 2**, showing that, most of the respondents were female 76, while the remaining respondents were male 60.

Regarding the position of the respondents, to know whether the respondents is a student, staff, the result are as follow:

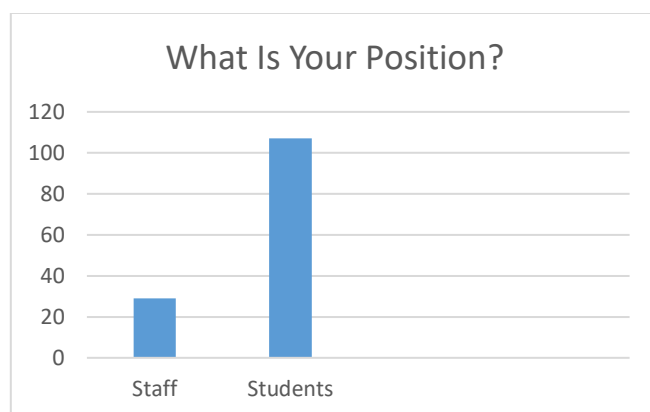


Figure 3: The Number of Respondents Dividing by Position

From **Figure 3**, showing that 29 of the respondents were staff members, and the majority, that are 107 were students.

In terms of respondents' academic qualification, the outcome areas follow:

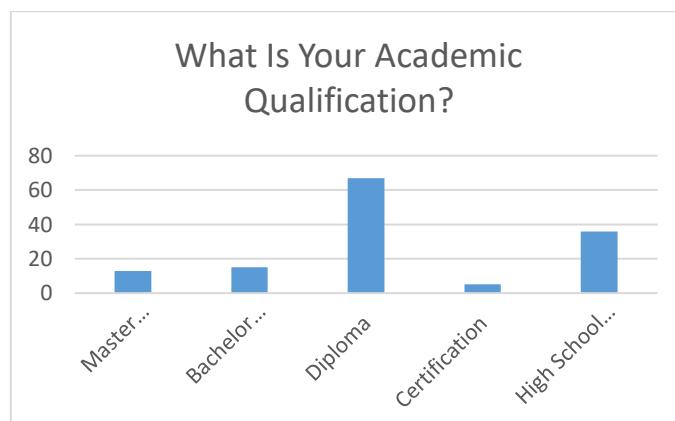


Figure 4: The Number of Respondents Dividing by Academic Qualification

Figure 4 portrays that the respondents had diverse backgrounds, with 15 respondents holding a bachelor's degree, 5 respondents having a Certificate, 36 respondents with a High School qualification, 67 of respondents holding a Diploma, and balance of 13 respondents having a master's degree.

The respondents represented various departments and the result is as follow:

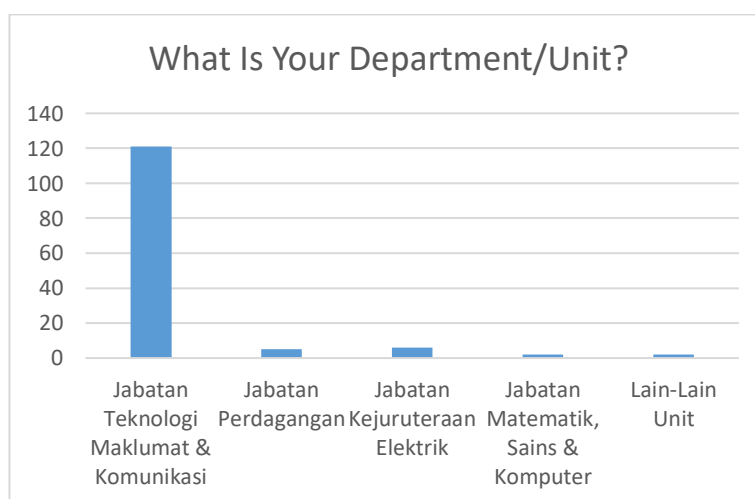


Figure 5: The Number of Respondents Dividing by Department/Unit

Figure 5, showing that majority of the respondents comes from Jabatan Teknologi Maklumat & Komunikasi (JTMK), with 121 respondents. Jabatan Perdagangan (JP) have recorded 5 respondents, Jabatan Kejuruteraan Elektrik (JKE) with 6 respondents, and both Jabatan Matematik, Sains & Komputer (JMSK), Lain-lain Unit, with 2 respondents.

Analysis of Survey Responses for Each Question

The survey questionnaire aimed to assess respondents' cybersecurity awareness and behaviours. The analysis of the survey responses revealed the following insights:

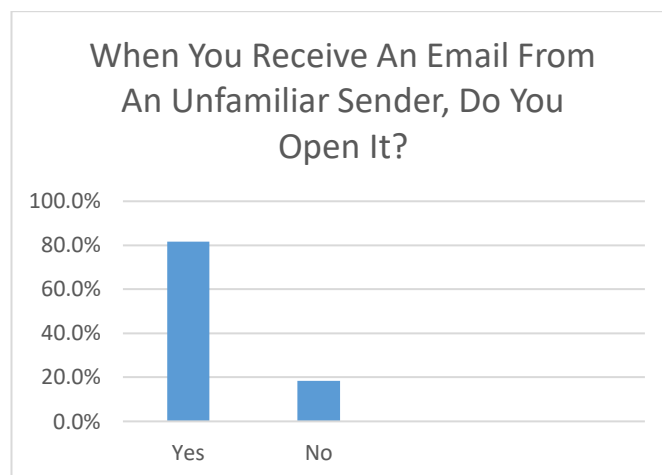


Figure 6: The Number Of Respondents Respond Towards Unfamiliar Email

From **Figure 6**, showing that, when receiving an email from an unfamiliar sender, 81.6% of respondents indicated that they open it, while only 18.4% respondents do not open it.

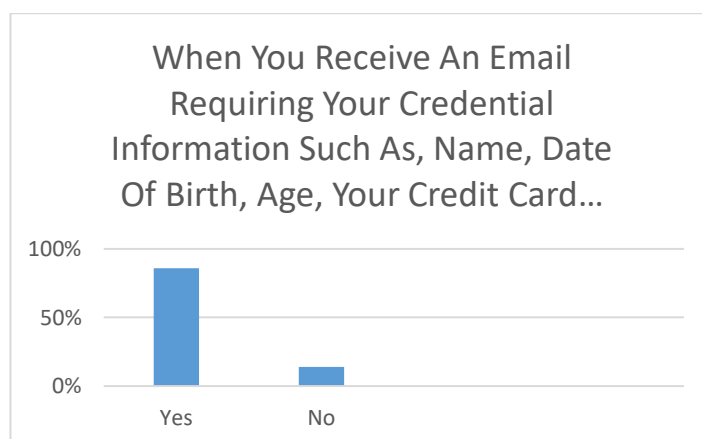


Figure 7: The Number of Respondents Respond Towards Email That Requires Credential Information.

Figure 7, showing that when respondents receive an email requires credential information, such as name, date of birth, or credit card number, do they respond to it. 86% of respondents responded to it, while balance of 14% did not respond.

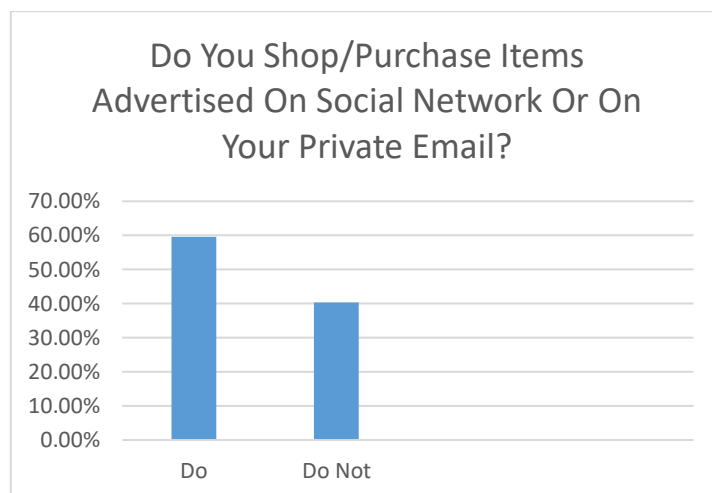


Figure 8: The Number of Respondents Respond on Shop/Purchase Items Advertised on Social Network or On Private Email

Moreover, referring to **Figure 8**, is regarding shopping/purchasing items advertised on social networks or private emails, 59.6% of respondents indicated that they do, while 40.4% respondents do not shop/purchase items advertised on social network or on private email.



Figure 9: The Number of Respondents That Know Characteristics to A Good Password, And Always Employ One When Accessing Secure Websites?

Figure 9 shows the result when the respondents were asked about knowing the characteristics of a good password and employing one when accessing secure websites. 94.1% of respondents indicated that they do, while 5.9% respondents do not.

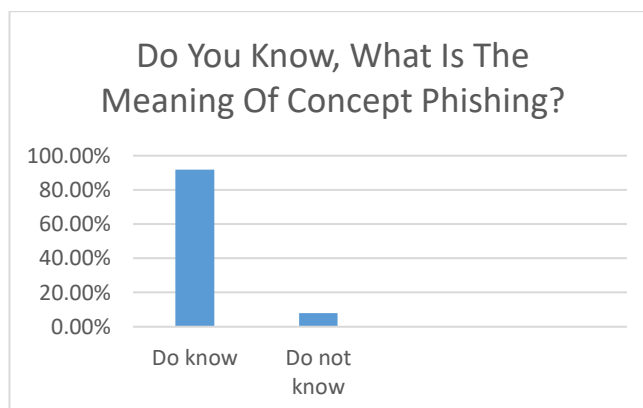


Figure 10: The Number of Respondents That Know Characteristics to A Good Password, And Always Employ One When Accessing Secure Websites?

From **Figure 10** is the result of respondents understanding the concept of phishing, 91.9% of respondents indicated that they do, while 8.1% do not understand.

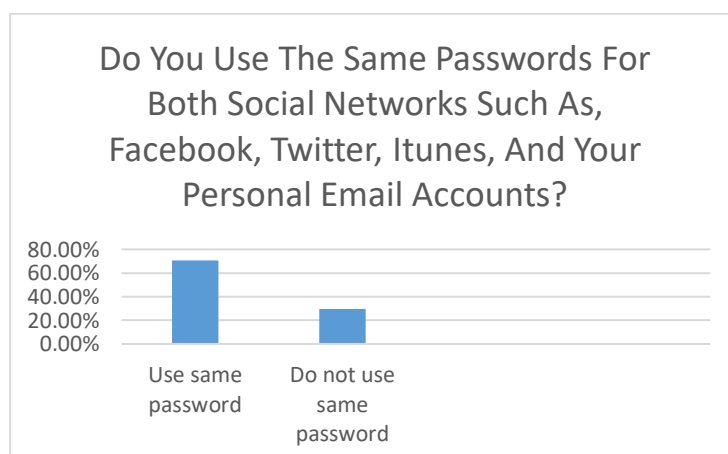


Figure 11: The Number of Respondents Divided by Knowing the Characteristics to A Good Password, And Always Employ One When Accessing Secure Websites.

Regarding password reuse for different social networks and personal email accounts, referring to **Figure 11**, 70.6% of respondents indicated that they use the same passwords, while 29.4% respondents do not.

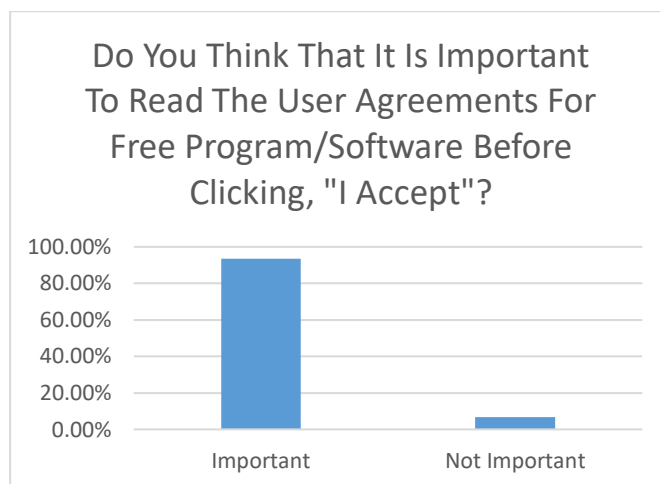


Figure 12: The Number of Respondents Know the Importance to Read the User Agreements for Free Program/Software Before Clicking, "I Accept"

Referring to **Figure 12**, When it comes to reading user agreements for free programs/software, 93.4% of respondents indicated that they consider it is important, and while 6.6% of the respondents do not.

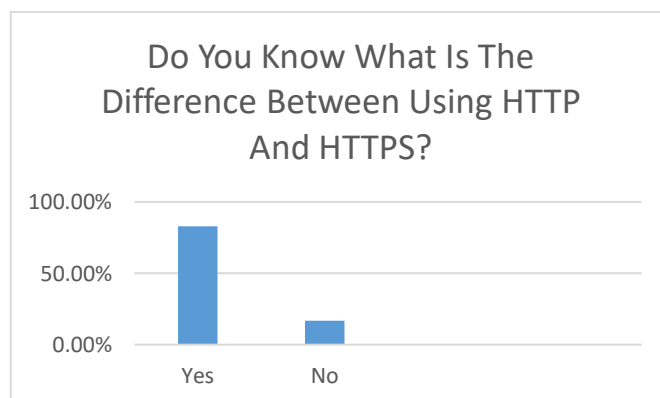


Figure 13: The Number of Respondents Know the Difference Between Using HTTP and HTTPS

Regarding the difference between using HTTP and HTTPS by referring to **Figure 13**, 83.1% of respondents indicated that they know the difference, while 16.9% of respondents do not the difference between HTTP and HTTPS.

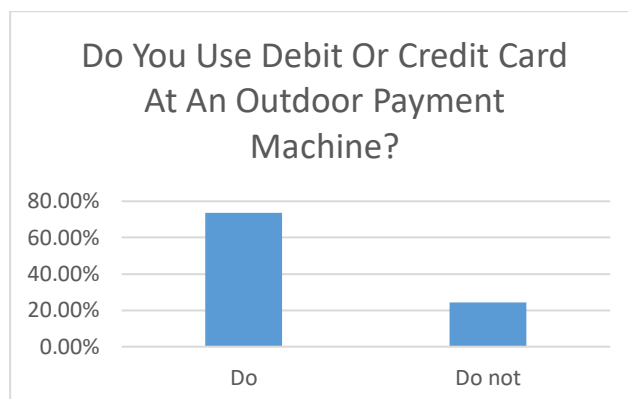


Figure 14: The Number of Respondents Using Debit or Credit Card at An Outdoor Payment Machine.

Referring to **Figure 14**, the survey is about using debit or credit cards at outdoor payment machines. 73.5% of respondents indicated that they do use it, and while 24.3% do not.

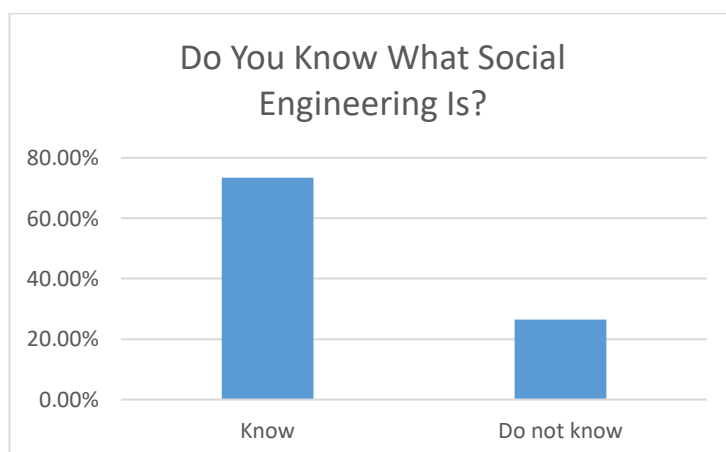


Figure 15: The Number of Respondents Know About Social Engineering

Regarding **Figure 15**, respondents' knowledge of social engineering resulted for 73.5% of respondents indicated that they know about it, while 26.5% do not know about social engineering.

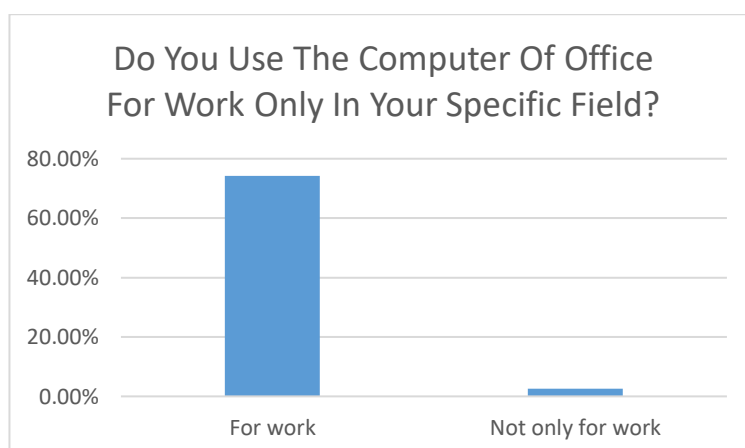


Figure 16: The Number of Respondents Only Use Computer of Office for Work.

When using computers at the office as shown in **Figure 16**, 74.3% of respondents indicated that they use them only for work in their specific field, while 25.7% do not use only for work.

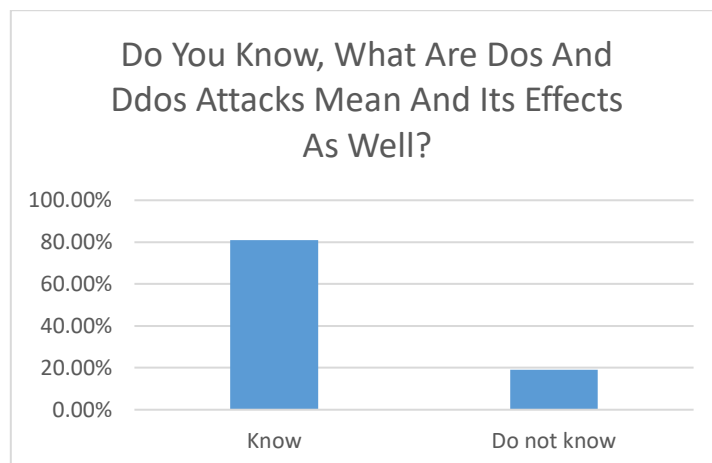


Figure 17: The Number of Respondents Know the Meaning of Dos and Ddos

Finally, referring to **Figure 17**, when asked about knowledge of DoS and DDoS attacks and their effects, 80.9% of respondents indicated that they know the meaning and effects, while 19.1% do not know the meaning.

Identification of Patterns and Trends in the Data

Upon analysing the survey responses, several patterns and trends emerged. For example, a significant proportion of respondents open emails from unfamiliar senders, respond to emails requiring credential information, and shop/purchase items advertised on social networks or private emails. However, a high percentage also demonstrated knowledge of good password characteristics, the concept of phishing, and the difference between using HTTP and HTTPS. It was observed that some respondents reuse passwords for different accounts and do not prioritize reading user agreements for free programs/software. Additionally, a considerable number of respondents showed awareness of social engineering, DoS and DDoS attacks, and the importance of privacy policies and information security accountability. Overall, the analysis provided insights into the respondents' level of cybersecurity awareness and highlighted areas that may require further attention or improvement.

By analysing the survey results, it becomes possible to understand the current state of cybersecurity awareness among the respondents and identify any areas that may need emphasis in educational programs or awareness campaigns.

Discussion

The discussion focuses on interpreting the survey results, comparing them with previous research, discussing their implications for cybersecurity awareness, and acknowledging the limitations of the study.

Interpretation of the Survey Results

The survey shows positive trends in cybersecurity awareness among respondents, with a majority understanding good password characteristics, phishing, HTTP and HTTPS usage, user agreements, social engineering, and DoS and DDoS attacks. Firms with a higher level of cybersecurity awareness are thus better positioned to prevent or reduce the cost of a cyber incident. (Hasani T, 2023) However, concerns include open emails from unfamiliar senders, using the same passwords for multiple accounts, and reliance on technology and software security. Targeted interventions are needed to improve cybersecurity awareness and promote best practices.

Comparison with Previous Research

The findings of this study align with and contribute to existing research on cybersecurity awareness. Similar studies have identified the prevalence of risky behaviours, such as opening emails from unfamiliar senders. (Kathryn Parsons, 2017) Moreover, previous studies regarding reusing passwords across multiple accounts also has been done. (Stephan Wiefeling, 2020) However, this study provides specific insights into the cybersecurity awareness landscape within the context of Politeknik Mersing, allowing for a localized understanding of the issue.

Implications for Cybersecurity Awareness

The results have several implications for cybersecurity awareness efforts within academic institutions like Politeknik Mersing. The findings suggest a need for targeted educational initiatives to address the identified gaps in knowledge and behaviours. These initiatives could focus on raising awareness about the risks associated with opening emails from unfamiliar senders, responding to requests for sensitive credentials, and reusing passwords. It is crucial to emphasize the importance of reading user agreements, understanding social engineering tactics, and regularly updating software and antivirus programs. Additionally, promoting a comprehensive understanding of cybersecurity, covering aspects such as confidentiality, integrity, availability, authentication, and authorization, is essential.

Limitations of the Study

It is important to acknowledge the limitations of this study. Firstly, the survey was conducted among a specific sample of respondents from Politeknik Mersing, which may limit the generalizability of the findings to a broader population. Secondly, the survey relied on self-reported responses, which are subject to recall and social desirability biases. Future studies could consider using a larger and more diverse sample to enhance the external validity of the findings. Additionally, incorporating qualitative research methods could provide deeper insights into the respondents' attitudes, motivations, and challenges regarding cybersecurity awareness.

Overall, the results of this study highlight the importance of continuous efforts to enhance cybersecurity awareness among students and staff at Politeknik Mersing. By addressing the identified gaps and implementing targeted educational interventions, the institution can strengthen its cybersecurity posture and better protect valuable data.

Conclusion

In conclusion, the survey results highlight the need for continuous efforts to enhance cybersecurity awareness at Politeknik Mersing. By addressing the identified gaps and promoting a culture of cybersecurity awareness, the institution can better protect valuable data and mitigate the risks associated with cyber threats.

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FIRST TO FILE AND GOOD FAITH OF REGISTERED BRANDS AND FAMOUS BRANDS IN INDONESIA

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Abstract: Intellectual Property Rights (IPR) have become a global issue, especially among countries that have been trading products based on Intellectual Property Rights. Intellectual Property Rights are a very important part of the international trade process, because every good and service as a trade product is always attached to a certain name or entity that differentiates one product from another. Trade in goods and services cannot currently take place without the legal protection of Intellectual Property Rights, because Intellectual Property Rights have high economic value attached to most trade products, apart from Intellectual Property Rights which have the characteristic of being very easy to cross national borders. This research aims to examine the legal protection of registered and well-known brands and first-to-file regulations and the good faith of registered and well-known brands, especially when a brand dispute occurs. The formulation of this research problem is 1. How is the legal protection of registered and well-known brands?; 2. How to regulate first to file and goodwill for registered brands and well-known brands. The research method used is normative juridical with an approach to laws and regulations, literature study, resolving brand disputes and comparing brand regulations with other countries. The conclusions of this research are: 1. The protection of registered marks and well-known marks is clear in Law Number 20 of 2016 concerning Marks and Geographical Indications, but the treatment for registration between registered marks and well-known marks is different, where well-known marks greatly benefit, especially by using the phrase bad faith. 2. Brand protection for both registered and well-known marks must be based on two things, namely first to file for registration in Indonesia and good faith for well-known and registered marks, whereas for registered marks it must not imitate and piggyback on the fame of other people's marks, whereas for well-known marks that is, the mark must be registered in its country of origin, register it with priority rights owned in Indonesia or if it has trade relations in Indonesia, before appointing a distributor or sales agent in Indonesia, register the mark.

Keywords: Registered Brand, Famous Brand, first to file, Good Faith

Introduction

Intellectual Property Rights (IPR) have become a global issue, especially among countries that have been trading products based on Intellectual Property Rights. Intellectual Property Rights are a very important part of the international trade process, because every good and service as a trade product is always attached to a certain name or entity that differentiates one product from another. Trade in goods and services cannot currently take place without the legal protection of Intellectual Property Rights, because Intellectual Property Rights have high economic value attached to most trade products, apart from Intellectual Property Rights which have the characteristic of being very easy to cross national borders.

Brands are part of Intellectual Property Law which have important value based on economic aspects. Brands are a form of Intellectual Property Rights which are very important in the process of trading an industrial product, both domestic trade and international trade, because with a brand attached to an industrial product, every consumer can differentiate between quality and quantity guarantees contained in an industrial product.

Brands as one of human intellectual creations are closely related to economic and trade activities and play a very important role. The era of globalization is increasingly strong in various fields, including in the fields of trade and services which do not recognize national boundaries, therefore regulations in the field of Intellectual Property Rights (IPR) including brands must always be able to meet existing developments effectively and efficiently.¹

A trademark is a trademark right that has special characteristics given by the state to the trademark owner to use the trademark himself or to give permission to others to use it.² A brand attached to an industrial product can be considered as a sign to identify the origin of goods and services (an indication of origin) of a company with the goods and/or services of another company. Brands are the spearhead of trade in goods and services, because through brands every entrepreneur can maintain and guarantee the quality of the goods and/or services produced and prevent unfair competition from other entrepreneurs who intend to piggyback on their reputation. Brands can also be used as marketing and advertising tools that provide certain information to consumers about goods and/or services.³

Brands not only function as differentiators of one product from other products, but brands also function as invaluable company assets, especially for brands that have a well-known reputation,⁴ However, brands have the ability to act as signs that can differentiate the results of one company from other companies in the market, both for similar and dissimilar goods or services.

In Indonesia, brands are legally regulated in Law Number 20 of 2016 concerning Marks and Geographical Indications (MIG). A trademark will receive legal protection after the trademark owner registers it with the country, which in this case is represented by the Directorate General of Intellectual Property Rights under the Department of Law and Human Rights. Formally registered trademark rights protection has had the juridical effect that parties wishing to obtain trademark rights protection must follow the registration mechanism that has been formally determined, so that the nature of registration is mandatory to obtain trademark rights protection. This also means that marks that are not registered will not receive protection from the state, so that these marks can be used by anyone (the public) without permission from the first mark owner, because marks that have not been legally registered are still considered public marks (public domain).⁵

¹ Marni Emmy Mustafa, *Aneka Penegakkan Hukum Hak Cipta, Paten, Merek dan Indikasi Geografis*, (Bandung : Alumni, 2018), hlm. 53.

² pasal 1 ayat (6) Undang-Undang Nomor 16 Tahun 2016 tentang Merek dan Indikasi Geografis.

³ Rahmi Jened, *Hukum Merek (Trademark Law) Dalam Era Global & Integrasi Ekonomi*, (Jakarta : Kharisma Putra Utama, 2015), hlm. 3.

⁴ Sadikin OK, *Aspek Hukum Hak Kekayaan Intelektual (Intellectual Property Right)*, Cetakan 4, (Jakarta : Raja Grafindo Persada, 2004), Hlm. 359.

⁵ Lihat: Pasal 3 Undang-Undang Nomor 20 Tahun 2016 tentang Merek dan Indikasi

Research Purposes

This research aims to examine the legal protection of registered and well-known brands and first to file regulations and the good faith of registered and well-known brands, especially when a trademark dispute occurs.

Formulation of the Problem

1. How is the legal protection of registered marks and well-known marks?
2. How to regulate first to file and goodwill for registered brands and well-known brands?

Research Methods

The research method used is normative juridical with a law and regulation approach, literature study, trademark dispute resolution and comparison of brand regulation with other countries.

Discussion

Registered Brand

Protected marks consist of signs in the form of images, logos, names, words, letters, numbers, color arrangements, in 2 (two) dimensions and/or 3 (three) dimensions, sounds, holograms, or a combination of 2 (two) or These elements are used to differentiate goods and/or services produced by individuals or legal entities in goods and/or services trading activities.⁶

The principle of legal protection of trademark rights uses the first to file principle through registration mechanisms per country or internationally. Internationally, registration of trademark rights is regulated in two (2) international agreements, namely:⁷

1. The Madrid Agreement Concerning the International Registration of Marks yang ditandatangani tahun 1881 dan mulai berlaku efektif tahun 1892;
2. Protocol relating to the Madrid Agreement 1989 (Madrid Protocol) yang mulai berlaku efektif tanggal 1 Januari 1996.

Rahmi Jened explained that trademark rights are generally obtained through registration procedures, although in some countries there are also unregistered trademarks which are protected based on the common law tradition called equity. Protection of registered trademark rights must be based on the principle of good faith on the part of the trademark registrant, so that only trademark registrants who have good faith can only receive legal protection based on the provisions of the Trademark and Geographical Indications Law.⁸

Geografis.

⁶ UU Merek dan Indikasi Geografis Nomor (UU MIG) 20 Tahun 2016, Pasal 2 ayat 3

⁷ Novianti, Implikasi Akses Protokol Madrid Bagi Indonesia, Jurnal Negara Hukum, Vol. 7, No. 2, November 2016.

⁸ Abdulkadir Muhammad, Hukum Perusahaan Indonesia, (Bandung : Citra Aditya Bakti, 2010), hlm. 418.

The theory of legal protection is limited and that respect for intellectual property is left to the strength of the right and public appreciation, and depends on the ability of thinkers and societal tolerance to prevent imitation. According to Hegel, wealth as a personal identification also provides benefits to society. Market share is the arbiter through which individual markets attempt to establish and protect self-identity through the voluntary exchange of wealth that reflects individual will. Society in this case has limited rights to prevent reasonable individual interests in accumulating, controlling, granting permits for their wealth. The needs of society alone will not justify expropriating someone's wealth, without adequate compensation.⁹

Indonesia adheres to a constitutive registration system. This system requires trademark registration so that a brand can receive protection. The constitutive system is also known as the first to first file system which confirms that the person who first registers the mark is the person who has the rights to the mark. However, even though Indonesia adheres to a constitutive system, Famous Marks that have not been registered in Indonesia will still receive protection. This is because Indonesia has ratified the Paris Convention and the TRIPs Agreement.¹⁰ Based on international agreements, a person who applies to register a trademark in a country that has signed an international agreement may be granted priority rights. This means that the person may precede other people who register the mark in Indonesia provided that the initial registrant applies for registration of the mark in Indonesia within a period of 6 (six) months from the initial application in another member country.¹¹

Trademark registration is intended to obtain legal protection for trademark registrants in Indonesia which is carried out using a constitutive system, meaning that rights to the trademark will arise due to registration. Every brand owner who has registered his/her brand has the right to obtain legal protection for the brand. Obtaining legal protection for registered trademarks is one of the functions of trademark registration. Trademarks registered by individuals or legal entities with the Directorate General of Intellectual Property Rights (IPR) cannot be accepted if there are elements of trademark registration in bad faith. The essence of trademark registration is basically to make it easier to prove the owner of the trademark or the first user of a trademark.

Regarding the function of brands, Elly Susilowati believes that the functions of brands are as follows:¹²

- a. As an identification mark or to differentiate the production of a person or several people together or a legal entity from the products of another person or other legal entity.
- b. As a promotional tool, it is enough to promote the production by mentioning the brand. Brands have a very important role in the world of advertising and marketing because people often associate the image, quality or reputation of goods or services with a particular brand. A brand can become a very valuable asset commercially. A company's brand is often more valuable than the company's real assets.

⁹ Prof. Dr. Rahmi Jened, SH, MH. Hukum Hak Cipta (Copy right), hal 13

¹⁰ N.N., Sedikit Kisah tentang Hapusnya Merek IKEA, <http://www.hki.id.>, Diakses pada 10 Desember 2023, Pukul 14.24 WIB,

¹¹ Tim Lindesey, Op. Cit., hlm 143.

¹² Elly Susilowati, Bunga Rampai Hak Kekayaan Intelektual, (Semarang : Universitas Diponegoro Press, 2012), hlm. 14

- c. As a guarantee of the quality of an item. Brands are also useful for consumers, because certain consumers often only want to use goods and services with certain brands that are high quality, safe to consume and will feel cheated if they use brands with low quality.

Not all brands receive legal protection, this can be seen from the provisions in Article 2 paragraph (3) of Law Number 20 of 2016 concerning Marks and Geographical Indications which states that: "Protected marks consist of signs in the form of images, logos, names, words, letters, numbers, color arrangements in 2 (two) dimensions and/or 3 (three) dimensions, sounds, holograms or a combination of 2 (two) or more of these elements to differentiate goods and/or services produced by people or legal entity in the activity of trading goods and/or services".

Provisions regarding the period of protection and extension of Registered Marks are regulated in Article 35 of Law Number 20 of 2016 concerning Marks and Geographical Indications (MIG Law) which states that:

1. Registered Marks receive legal protection for a period of 10 (ten) years from the date of receipt;
2. The protection period as intended in paragraph (1) can be extended for the same period;
3. The application for extension as intended in paragraph (2) is submitted electronically or non-electronically in Indonesian by the mark owner or his/her proxy within a period of 6 (six) months before the end of the protection period for the Registered Mark and is subject to a fee;
4. Applications for extension as intended in paragraph (2) can still be submitted no later than 6 (six) months after the end of the Registered Mark protection period and are subject to fees and fines equal to the renewal fee.

Article 20 of the MIG Law states that a trademark cannot be registered if:

- a. contrary to state ideology, laws and regulations, morality, religion, decency or public order;
- b. is the same as, relates to, or only mentions the goods and/or services for which registration is requested;
- c. contains elements that can mislead the public about the origin, quality, type, size, type, intended use of goods and/or services for which registration is requested or is the name of a protected plant variety for similar goods and/or services;
- d. contains information that is inconsistent with the quality, benefits or efficacy of the goods and/or services produced;
- e. has no distinguishing power; and/or
- f. is the common name and/or symbol of public property.

Article 21 and 22 of the MIG Law regulate that a trademark application is rejected if it is substantially or completely similar to a trademark:

- a. A registered mark belongs to another party or was previously applied for by another party for similar goods and/or services;
- b. Well-known brands belonging to other parties for similar goods and/or services;
- c. Well-known brands belonging to other parties for dissimilar goods and/or services that meet certain requirements; or
- d. Registered Geographical Indication;
- e. Represents or resembles the name or abbreviation of the name of a famous person, photo, or name of a legal entity owned by another person, except with written approval from the person entitled to it.;
- f. Is an imitation or resembles the name or abbreviation of the name, flag, symbol or emblem of a country, or national or international institution, unless with written approval from the authorized party; or
- g. Is an imitation or resembles an official mark or stamp or seal used by a state or government agency, unless with written approval from the authorized party;
- h. The application is rejected if it is submitted by an applicant who has bad intentions.

Famous Brand

Protection of well-known brands in Indonesia is regulated, among other things, in Article 21 paragraph (1) letters b and c and Article 21 paragraph (3) of Law Number 20 of 2016 concerning Marks and Geographical Indications. Article 21 paragraph (1) letter b of Law Number 20 of 2016 concerning Marks and Geographical Indications explains that an application must be rejected by the Directorate General of Intellectual Property if the mark is substantially or completely similar to a well-known mark belonging to another party for goods and/or or something similar.

Elucidation of Article 21 paragraph (1) letter b of Law Number 20 of 2016 concerning Geographical Indications states that determining the popularity of a brand must be carried out by considering the public's general knowledge of the brand in the relevant business field and also paying attention to its reputation as a well-known brand obtained due to promotion. massive investment in several countries in the world by the owner and accompanied by proof of registration of the brand in several countries in the world. If the above matters are not deemed sufficient, the Commercial Court can order an independent institution to conduct a survey to obtain conclusions regarding whether the mark is famous or not which is the basis for rejection.

Furthermore, Article 21 paragraph (1) letter c can also be applied to goods and/or services that are not similar as long as they meet certain requirements which will be further determined by government regulations. Article 21 paragraph (3) further explains that a mark cannot be registered on the basis of an application submitted by an applicant who has bad intentions.

In several literatures there are many terms that refer to famous brands, including famous mark, well-known mark and old mark. The terms well-known mark and famous mark refer to well-

known brands, while well-known marks refer to famous brands that are considered to have a higher level of fame than well-known brands.¹³

These terms provide a level of popularity for a brand, in Indonesian, the term well-known mark, it is difficult to know the popularity of a well-known mark and its meaning. In Indonesia, the meaning of well-known is the same as famous, namely famous. well-known mark is defined as a well-known brand that has a high reputation. The symbol of a famous brand has the power to fascinate so that all types of goods under that brand will create a touch of familiarity and mythical ties to all levels of consumers. Famous mark is the highest brand degree level which is defined as a famous brand. Some other terms used to refer to well-known brands are highly outdated marks or notorious marks.¹⁴ This term is a superlative of well known, which means that a well-known brand has a higher degree than an ordinary brand.¹⁵

Brand reputation influences sales of goods and/or services. Based on the brand's reputation, many consumers are becoming more familiar with the brand, and finally the brand can be categorized as a Famous Brand. This brand is the dream and main choice of all levels of consumers.

Famous Brand contains the meaning of "famous" according to general public knowledge.¹⁶ This opinion is almost similar to the opinion which states that an internationally famous trademark is a brand that is widely known by the public based on the reputation it has gained due to continuous promotion by its owner followed by proof of trademark registration in various countries."¹⁷

Further opinions regarding the criteria for Famous Brands, among others:¹⁸

- a. Become the dream or choice of various levels of consumers;
- b. The symbol has an attractive radiant power;
- c. Supported by the following factors:
 - 1) High marketing value presentation;
 - 2) The presentation must be related to the breadth of marketing areas throughout the world;
 - 3) The position is stable for a long time;
 - 4) It cannot be separated from the type and type of goods.

¹³ Insan Budi Maulana, Perlindungan Merek Terkenal di Indonesia dari Masa ke Masa, (Bandung, Citra Aditya Bakti, 1999), hlm. 23.

¹⁴ Yahya Harahap, Tinjauan Merek secara Umum dan Hukum Merek di Indonesia Berdasarkan Undang-Undang Nomor 19 Tahun 1992, (Bandung : Citra Aditya Bakti, 1996), hlm. 82.

¹⁵ Ibid, hlm. 85

¹⁶ Rahmi Jened, Hak Kekayaan Intelektual Penyalahgunaan Hak Eksklusif, (Surabaya : Airlangga University Press, 2007), hlm. 241.

¹⁷ Imam Sjahputra,, Heri Herjandono dan Parjio. Hukum Merek Baru Indonesia, (Jakarta : Harvarindo, 1997), hlm. 20.

¹⁸ Yahya Harahap, Tinjauan Merek Secara Umum dan Hukum Merek di Indonesia Berdasarkan Undang-undang Nomor 19 Tahun 1992, (Bandung : Citra Aditya Bakti, 1996), hlm. 86-88.

Richard Heat put forward several criteria that can be used as a benchmark for a well-known brand, namely: “Some of the possible criteria which were mentioned are as follows but they are not necessarily exhaustive :

- a. market share;
- b. Inherent registrability;
- c. Acquired distinctiveness;
- d. The nature of the goods or services;
- e. The nature of the channels of trade;
- f. The duration of extent of use;
- g. The duration and the extent of publicity.

World Intellectual Property Organization (WIPO) provide recommendations regarding the criteria for Famous Brands as follows:¹⁹

- a. The degree of knowledge or recognition of the mark in the relevant sector of the public;
- b. The duration, the extent and geographical area of any use of the mark;
- c. The duration, the extent and geographical area of any promotion of the mark, including advertising or publicity and the presentation, at fairs or exhibitions, of the goods and/or services to which the mark applies;
- d. The duration and geographical area of any registration, and/or any applications for registration, of the mark, to the extent that they reflect use or recognition of the mark;
- e. The record or successful enforcement of rights in the mark, in particular, the extent to which the mark was recognized as well known by competent authorities;
- f. The value associated with the mark.

Based on Supreme Court Jurisprudence Number 1486K/Pdt/1991 dated 28 November 1995 which has expressly provided the following legal criteria:²⁰ “A brand is included in the definition of Well Known Mark, which in principle means that the brand has circulated beyond regional boundaries and even transnational boundaries, therefore if it is proven that a brand has been registered in many countries in the world, then it is qualified as a Well Known Mark because it has been circulated. to border areas outside their country of origin”.

Comparison of Famous Brand Settings Is as Follows:

Country	Definition of Famous Brand
Singapore	<i>(a) any registered trade mark that is well known in Singapore; or (b) any unregistered trade mark that is well known in Singapore and that belongs to a person who :</i>

¹⁹ Joint Recommendation Concerning Provision on The Protection of Well Known Mark, Adopted by Assembly of the Paris Union for The Protection of Industrial Property and the General Assembly of the World Intellectual Property (WIPO) at the Thirty-Fourth Series of Meeting of The Assemblies of the Member States of WIPO, September 20 to 29, 1999.

²⁰ Putri Permata Amalia, Perbedaan Penerapan Syarat Pembatalan Merek Terkenal Antara Pengadilan Niaga dan Mahkamah Agung Dalam Kasus Piaget dan Piaget Polo, (Malang : Fakultas Hukum Universitas Brawijaya, 2015), hlm. 11

	(i) is national of a Convention country; or (ii) is domiciled in, or has a real and effective industrial or commercial establishment, in a Convention country, whether or not that person carries on business, or has any goodwill, in Singapore.²¹
Malaysia	a. Well known trademark means any trademark that is well known in Malaysia and that belongs to a person who (a) Is a national of a convention country; or (b) Is domiciled, or has a real and effective industrial or commercial establishment, in a Convention Country, b. In determining whether a trademark is well known in Malaysia, the Registrar or the whether or not that person carries on business, or has any goodwill, in Malaysia.
Amerika	a mark is famous if it is widely recognized by the general consuming public of the United States as a designation of source of the goods or services of the mark's owner. In determining whether a mark possesses the requisite degree of recognition, the court may consider all relevant factors, including the following: (i) The duration, extent, and geographic reach of advertising and publicity of the mark, whether advertised or publicized by the owner or third parties. (ii) The amount, volume, and geographic extent of sales of goods or services offered under the mark. (iii) The extent of actual recognition of the mark. (iv) Whether the mark was registered under the Act of March 3, 1881, or the Act of February 20, 1905, or on the principal register.
EU	Well-Known Mark Protection under EU Law (EUIPO Guidelines) Page 1052 <i>“Although the terms ‘well known’ and ‘reputation’ denote distinct legal concepts, there is a substantial overlap between them, as shown by a comparison of the way in which well-known marks are defined in the WIPO recommendations with the way in which reputation was described by the Court of Justice in ‘General Motors’. In both cases, the assessment is principally based on quantitative considerations regarding the degree of knowledge of the mark among the public, and the thresholds required for each case are expressed in quite similar terms.”</i>

Country	Famous Brand Criteria
Singapore	Subject to subsection (8), in deciding, for the purposes of this Act, whether a trade mark is well known in Singapore, it shall be relevant to take into

²¹ N.N., Singapore Trade Marks Act (Chapter 332, Revised Edition 2005), http://www.wipo.int/wipolex/en/text.jsp?file_id=187981, Diakses pada tanggal 25 November 2020, Pukul 19.15 WIB.

account any matter from which it may be inferred that the trade mark is well known, including such of the following matters as may be relevant:

- (a) the degree to which the trade mark is known to or recognized by any relevant sector of the public in Singapore;
- (b) the duration, extent, and geographical area of :
 - (i) any use of the trade mark; or
 - (ii) any promotion of the trade mark, including any advertising of, any publicity given to, or any presentation at any fair or exhibition of, the goods or services to which the trade mark is applied;
- (c) any registration or application for the registration of the trade mark in any country or territory in which the trade mark is used or recognized, and the duration of such registration or application;
- (d) any successful enforcement of any right in the trade mark in any country or territory, and the extent to which the trade mark was recognized as well known by the competent authorities of that country or territory; (e) any value associated with the trade mark

Malaysia

Criteria of a well-known trademark The Registrar or the Court shall have regard to the following criteria:

- (a) The extent of knowledge or recognition of the trademark in the relevant sector of the public;
- (b) The duration and extent, and geographical area of any use of the trademark;
- (c) The duration and extent of any promotion of the goods or services where the trademark applies and the geographical areas where the promotion is carried out;
- (d) The duration and place of registration, or duration and place of application for registration of the trademark to the extent that they reflect use or recognition of the trademark;
- (e) The record of successful enforcement of rights in the trade, in particular the extent to which the trademark was recognized as well-known by competent authorities; and
- (f) The value associated with it

Amerika

Under Lanham Act § 43(c), 15 U.S.C.A. § 1125(c), a mark is famous if it is widely recognized by the general consuming public of the United States as a designation of source of the goods or services of the mark's owner. In determining whether a mark possesses the requisite degree of recognition, the court may consider all relevant factors, including the following:

1. *The duration, extent, and geographic reach of advertising and publicity of the mark, whether advertised or publicized by the owner or third parties.*
2. *The amount, volume, and geographic extent of sales of goods or services offered under the The extent of actual recognition of the mark.*

EU *Article 8 1. Upon opposition by the proprietor of an earlier trade mark, the trade mark applied for shall not be registered: 2. For the purposes of paragraph 1, 'earlier trade mark' means: (c) trade marks which, on the date of application for registration of the EU trade mark, or, where appropriate, of the priority claimed in respect of the application for registration of the EU trade mark, are well known in a Member State, in the sense in which the words 'well known' are used in Article 6bis of the Paris Convention. Well-Known Mark Protection under EU Law (EUIPO Guidelines) Page 1052*

Regulations regarding the registration of Famous Marks in a country differ in treatment between countries if there is a dispute with a registered mark, as seen below:

No	Country	Famous Brand Settings
1	Indonesia	Must be registered
2	Singapura	Not required to be registered
3	Malaysia	Not required to be registered
4	USA	Must be registered
5	EU	Must be registered

The following is a comparison matrix for Famous Brand regulations that distinguishes similar or dissimilar goods or services in Famous Brand settings in different countries:

No	Country	Famous Brand Settings
1	Indonesia	There is no distinction between goods/services that are similar or do not belong to a well-known brand
2	Singapura	There is no distinction between goods/services that are similar or do not belong to a well-known brand
3	Malaysia	Distinguish between goods/services that are similar or do not belong to a well-known brand
4	USA	---
5	EU	There is no distinction between goods/services that are similar or do not belong to a well-known brand

Good faith and First to file

Bad faith here is the opposite of good faith. So it can be interpreted that a brand owner with bad intentions is a brand owner who is dishonest, who registers a brand fraudulently, namely imitating someone else's brand, plagiarizing, or piggybacking on the fame of another person's brand which results in losses for the brand owner or the public.²²

²² OK, Sadikin, Aspek Hukum Hak Kekayaan Intelektual, hlm 357

According to Gatot Suparmono, bad faith is an attitude of mind that intentionally imitates another party's brand by violating the provisions of the trademark law which should uphold the principle of good faith vide Article 4, which states that: "Marks cannot be registered on the basis of the application was submitted by the applicant in bad faith." Bad faith is the opposite of good faith, where good faith is essentially "the brand owner has a brand that has no similarities in essence or in its entirety with other people's brands."²³

Meanwhile, the principle of brand protection is first to file, where the person who is recognized as brand owner or who gets brand ownership protection is the owner who registered the brand first.

Apart from the first to file principle, there is a priority principle where brands registered abroad get priority to be registered in Indonesia within a period of 6 months.²⁴ Priority rights are the rights of trademark registrants to obtain recognition that the date of receipt of registration in the country of origin is the priority date in Indonesia. This means that the date of receipt recorded in Indonesia is the same as the date of receipt in the country of origin, even though the registration time is different.

Famous Marks or marks that have been registered in their country. If you want to have trade relations with Indonesia through individuals or legal entities, one of the very important things to do is register the mark you want to trade in Indonesia and must comply with the legal provisions in force in Indonesia, especially for legal protection of traded marks.

There have been many trademark disputes between registered trademarks and well-known trademarks or trademarks registered in the country of origin of the goods or services where the external party was negligent so that in the dispute the trademark was defeated in court and thus did not get legal protection for trademarks traded in Indonesia and could even be requested for cancellation at the trademark office. not to mention the amount of money spent to buy the registered mark if the registered mark is willing to reconcile.

Cases of brands IKEA, Piere Cardin, BMW, Monster Energy, Lexus or cases of Starbuck Cafe, Apple in China where disputes with well-known brands were defeated on the grounds that:

- a. Expiration of lawsuit or
- b. Different brands or types of goods
- c. Premature lawsuit or
- d. Brand not used or
- e. Not as a famous brand or
- f. Not extended the brand or
- g. The brand is not registered.

²³ Ibid

²⁴ UU MIG pasal 9 dan Peraturan Menteri Hukum Dan Hak Asasi Manusia Nomor 67 Tahun 2016 Tentang Pendaftaran Merek (Permenkumham Merek).

Conclusion

1. Protection of registered marks and well-known marks is clear in Law Number 20 of 2016 concerning Marks and Geographical Indications, but the treatment for registration between registered marks and well-known marks is different, where well-known marks benefit greatly, especially by using the phrase bad faith;
2. Brand protection for both registered and well-known marks must be based on 2 things, namely first to file for registration in Indonesia and good faith for well-known and registered marks, where registered marks must not imitate and piggyback on the fame of other people's marks, whereas for well-known marks that is, the mark must be registered in its country of origin, register it with priority rights owned in Indonesia or if it has trade relations in Indonesia, before appointing a distributor or sales agent in Indonesia, register the mark.

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DIGITALIZATION OF INDONESIAN ELECTIONS IN THE INDUSTRIAL ERA 4.0

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Abstract: *The Indonesian Democratic Party will soon be held, at the voter participants in the democratic party on February 14, 2024 as many as 205,853,518 voters with the stages and schedules of holding general elections (elections) starting from June 14, 2022 to October 20, 2024 with the Oath or Promise of the President and Vice President and one of the problems is the length of document validation. This research was conducted with the aim of developing an effective and efficient information management model, verification and validation of election participant documents to accelerate the election stages and be accurate in the industrial 4.0 era. This research uses a descriptive qualitative method with a normative juridical study approach, literature and comparison. The results showed that by using Information Technology can be developed and able to accelerate the election stages accurately with the concept of data base, digital verification, data transfer by minimizing manual verification in elections. It is recommended to the government to utilize election technology to become a new paradigm in the digital world for a great Indonesia. Problems always exist but intention and seriousness will find a way.*

Keywords: *Indonesian General Election, Election Technology, Information Technology*

Introduction

The Indonesian Democratic Party will soon be held, there are 205,853,518 voters participating in the democratic party on February 14 2024, the final voter list (DPT) in Indonesia is 192,770,611 people to elect the President, Vice President, members of the DPR, members of the DPRD provincial, district/city DPRD members, and DPD members²⁵ while in the 2019 election there were 190,770,329 registered voters and 158,012,505 or 82.83% exercised their right to vote,²⁶ is an Indonesian democratic party that received a 'thumbs up' from democratic countries.

An important milestone in a democratic system is the existence of a mechanism for channeling the people's voice aspirations periodically through general elections (elections). Elections are a forum for distributing the very basic human rights of citizens. Since Indonesia's independence in 1945, it has held elections 12 times, starting from the first election in 1955 to the 2019 election.

The main idea in The 1945 Constitution of the Republic of Indonesia (UUD 1945), where the Republic of Indonesia is a Unitary State based on popular sovereignty as stated in Article 1 paragraph 1 and paragraph 2 of the 1945 Constitution and in implementing the principle of

²⁵ <https://www.kpu.go.id/berita/baca/11547/dps-pemilu-2024-205-juta-peleksi>

²⁶ https://id.wikipedia.org/wiki/Pemolehan_umum_Indonesia_2019

popular sovereignty led by wisdom in deliberation and representation, it is necessary to establish deliberative institutions and people's representative institutions whose members are elected through elections, which is a means of democracy to realize a state government system with popular sovereignty as mandated by the 1945 Constitution. Democracy places humans as owners of sovereignty, which is then known as the principle of popular sovereignty.

As we know, the election system in Indonesia is known as the most complicated and largest election in the world, where in the 2019 election, there were 5 ballot boxes with 3 different systems for the election of president, DPD, and DPR, provincial and district/city DPRD in just 1 day. holding elections with 190 million voters. As a result of this complexity, 894 organizing officers at the Voting Organizing Group (KPPS), District Election Committee (PKK), and Voting Committee (PPS) levels died and 5,175 were sick due to fatigue during the vote counting and recapitulation of tiered votes with congenital illnesses.²⁷

Research Methods

This type of research uses a descriptive qualitative method with a normative juridical, literature and comparative study approach.

Formulation of the Problem

1. How are the General Elections held in Indonesia?
2. How is digitization from the process to the final results of the General Election a new paradigm towards a great Indonesia?

Discussion

History of Elections in Indonesia

The holding of simultaneous elections on April 17 2019 is a new history in the general election process in Indonesia. This is an implication of the Constitutional Court (MK) Decision Number 14/PUU/2013 regarding the review of Law Number 42 of 2008 concerning the General Election of the President and Vice President. Even though simultaneous elections have been considered better than previous elections, this does not mean that their implementation has no shortcomings. The most shocking problem is the large number of fatalities by election organizers which are considered to be the impact of the 2019 simultaneous elections as well as other technical problems. Looking at the various aspects that emerged from the 2019 election, the Association for Elections and Democracy (Perludem) carried out a judicial review of the 1945 Constitution at the Constitutional Court which was stated in the Constitutional Court Decision Number 55/PUU-XVII/2019. In his argument, the applicant conveyed several things related to the analysis that had been carried out in the implementation of the simultaneous elections held in 2019. As a result of this decision, the Constitutional Court rejected the applicant's application in its entirety because it deemed the application had no legal grounds.

²⁷ <https://www.kompas.id/baca/polhuk/2022/10/20/literasi-digital-perkuat-penerimaan-digitalisasi-pemilu>

However, the Constitutional Court provides options regarding models of simultaneous elections that can be selected and considered constitutional based on the 1945 Constitution.²⁸

The history of the electoral system in Indonesia has undergone changes along with changes to provisions in the 1945 Constitution which were carried out in stages in 1999, 2000, 2001 and 2002. In the third amendment to the 1945 Constitution, Chapter VIIB General Elections, Article 22E states: Paragraph (1) "General elections are carried out directly, publicly, freely, secretly, honestly and fairly every five years." Paragraph (2) "General elections are held to elect members of the People's Representative Council, Regional Representative Council, President and Vice President, and Regional People's Representative Council." Paragraph (3) "Contestants in the general election to elect members of the People's Representative Council and members of the Regional People's Representative Council are Political Parties."

Paragraph (4) "Contestants in the general election to elect members of the Regional Representative Council are individuals." Paragraph (5) "General elections are held by a national, permanent and independent general election commission". The election provisions are different from the provisions in the 1945 Constitution before the amendment. The provisions in the 1945 Constitution before the amendment only stated that, "The People's Consultative Assembly consists of members of the People's Representative Council, plus delegates from regions and groups, according to the rules established by law".⁹ Then related with the composition of the members of the DPR, it is emphasized that, "The composition of the House of Representatives is determined by law".²⁹

In the history of the general election process, the election of legislative members and the presidential election have always been carried out separately. This made some people feel that the implementation was inefficient and not in accordance with the 1945 Constitution. Through this problem, Effendi Gazali submitted a request for review of Law Number 42 of 2008 concerning the Election of the President and Vice President against the 1945 Constitution in the Constitutional Court decision Number 14/PUUXI /2013.³⁰

Regarding the relationship between the electoral system and the presidential government system, the Constitutional Court is of the opinion that in practice in 2004 and 2009, the election system made the President and Vice President very dependent on the support of the DPR consisting of Political Parties in order to be nominated. Political negotiations also often occur for tactical and momentary interests, without considering the governance and long-term

²⁸ The Most Ideal Simultaneous Election for 2024 Based on the Decision of the Constitutional Court of the Republic of Indonesia Mushaddiq Amir, AL-ISHLAH: Legal Scientific Journal Vol. 23, no. 2(November2020) 115–132, <https://jurnal.fh.umi.ac.id/index.php/ishlah/article/view/v23n2-1/36>

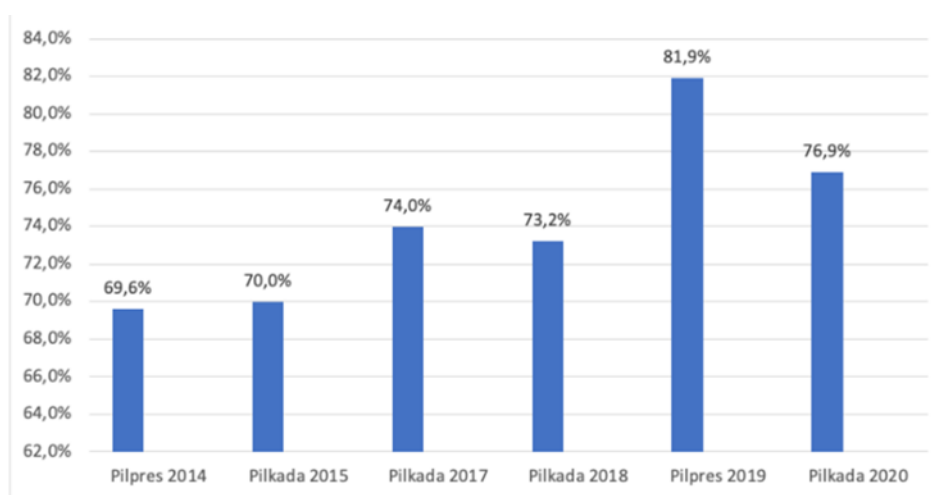
²⁹Article 19 Paragraph (1) of the 1945 Constitution before amendments. In this article it is only emphasized that the provisions regarding deliberative institutions and their members are determined by law. Likewise, the composition of DPR members is determined by law. These provisions are clearly different from the provisions regarding Elections regulated in the 1945 Constitution after the amendment, which clearly and unequivocally states provisions regarding Elections, Election Participants and Election Organizers.

³⁰ The Most Ideal Simultaneous Election for 2024 Based on the Decision of the Constitutional Court of the Republic of Indonesia Mushaddiq Amir, AL-ISHLAH: Legal Scientific Journal Vol. 23, no. 2(November2020) 115–132, <https://jurnal.fh.umi.ac.id/index.php/ishlah/article/view/v23n2-1/36>

benefits.³¹ Furthermore, according to the MK, the current constitutional practice, with the implementation of presidential elections after the election of members of representative bodies, in the process of its development cannot be a means of transforming the system in an ideal direction.

Community Participation

The high level of public awareness of using their voting rights deserves appreciation as can be seen in the table below:



Voter Participation Rate in The Last 6 Elections (2014-2020)

Source: kpu.go.id dan databoks.katadata.go.id

Stages of Holding Elections

The following shows the stages of implementing the 2024 elections, starting with program and budget planning and ending with taking the oath/promise of the President and Vice President, as shown in the table below:

Stages and Schedule for the 2024 Election ³²	
Timetable	Stages
June 14, 2022 - June 14, 2024	Program and Budget Planning
June 14, 2022 - December 14, 2023	Preparation of KPU Regulations
October 14, 2022 - June 21, 2023	Updating voter data and compiling voter lists
July 29, 2022 - December 13, 2022	Registration and Verification of Election Participants
December 14, 2022 - February 14, 2022	Determination of Election Participants

³¹ Jane Aileen, Simultaneous Elections in 2019, Why Not This Year?, <https://www.bantuan Hukum.or.id/web/pemilu-serentak-di-tahun-2019-kenapa-not-tahun-ini/>, accessed at April 18, 2020. 8Ibid. 9Ibid. Al-Ishlah, Vol. 23, no. 2 (November 2020)

³² https://infopemilu.kpu.go.id/Pemilu/Peserta_pemilu

Timetable	Stages
October 14, 2022 - February 9, 2023	Determination of the number of seats and determination of electoral districts
December 6, 2022 - November 25, 2023	DPD nomination
April 24, 2023 - November 25, 2023	Nomination of members of the DPR, provincial DPRD and district/city DPRD
October 19, 2023 - November 25, 2023	Nomination of President and Vice President
November 28, 2023 - February 10, 2024	election campaign period
February 11, 2024 - February 13, 2024	Quiet period
February 14, 2024 - February 15, 2024	Voting and Counting of Votes
February 15, 2024 - March 20, 2024	Recapitulation of Vote Count Results
adjusted to the end of the term of office of each member of the district/city DPRD	Pronunciation of the Oath/Promise of the district/city DPRD
adjusted to the end of the term of office of each member of the provincial DPRD	Provincial DPRD Oath/Promise Pronounced
October 1, 2024	Pronunciation of the Oath/Promise of the DPR and DPD
October 20, 2024	Pronunciation of the Oath/Pledge of the President and Vice President

Source: PKPU NO 3 of 2022

Election Digitalization

President Joko Widodo recently announced that the elections will be held on February 14 2024. However, the election stages will begin in June 2022. Meanwhile, the regional elections will simultaneously be held in November 2024.

Apart from the timing of the election, an issue that is also hotly discussed is the discourse on implementing digital technology-based elections. The reason is that this proposal emerged at the Election Digitalization Coordination Meeting for the Digitalization of Indonesia, on Tuesday, March 22 2022 in Bali.³³

Meanwhile, the Minister of Communication and Information (Menkominfo), is encouraging the digitalization of the 2024 Election by implementing e-voting (electronic voting). According to him, the adoption of digital technology in this election has the benefit of realizing effectiveness and efficiency in a well-legitimate political contestation process. This proposal received various responses from various parties, some supported it but others criticized it.³⁴

³³<https://www.kominfo.go.id/content/detail/41113/besar-pemilu-2024-lalu-ditetakan-presiden-pastikan-tak-ada-penundaan/0/berita>

³⁴ <https://www.kominfo.go.id/content/detail/40725/siaran-pers-no-100hmkominfo032022-tangan-digitalisasi-pemilu-menkominfo-jangan-studi-banding-penerapan-di-negara-lain/0/> Press conference

Preparation For E-Voting And I-Voting

Before carrying out e-voting (electronic voting) or i-voting (internet voting), there are several things that need to be considered, namely verifying voter data and those selected. E-KTP data is very important where data that can be accessed via e-KTP can prevent multiple voters, while verification of selected data can be done more quickly by accessing existing data on population, national education, hospitals, police and other government or private agencies. issue documents for selected purposes and if deemed necessary then carry out verification for doubtful matters. So it really saves time, energy and costs and this is very important so that all existing data is valid and its truth is not in doubt.

Indonesia, which has a large population and is spread over thousands of islands, is not easy to distribute and carry out elections, which is why technological support will make it easier, faster and save costs, energy and time. In other words, the use of election digitalization is very appropriate.

Abroad, e-voting was used by Estonia in 2005 at the local level, which was then implemented at the national level in 2007. Apart from that, India, the Philippines, America, Russia, Sweden, Pakistan, Zakharkhan, Belgium have held digital elections.

In Indonesia, e-voting is actually nothing new. e-voting has been implemented several times, but still on a small scale. The first and considered successful was in the election of the Village Head in Jembrana, Bali in 2009. In March 2017 e-voting was also used in the Village Head Election in Babakan Wetan Village, Bogor. In fact, based on information conveyed by the Minister of Home Affairs, the simultaneous village elections held in 2021 yesterday used an internet voting or e-voting system. A total of 155 villages have tried using e-voting during the Village Head Election.³⁵

Benefits of Election Digitalization

1. Fast: With the help of technology, digitalization of elections can be carried out more quickly, even very quickly at all stages of election implementation.
2. Accurate: Human errors can be overcome with the help of technology because technology is tireless and error-free so that election results can be not only fast but also accurate.
3. Cheap: The application of technology is definitely cheaper, can save in all aspects because it is paperless, simple, reduces casualties during the distribution of election equipment and the implementation of elections, besides that the devices can be used repeatedly and for purposes in elections, regional elections and at lower levels such as heads villages, even the Agency for the Assessment and Application of Technology (now merged with BRIN) in 2014 stated that e-voting in regional elections could save costs by up to 50 percent³⁶

³⁵ Discourse on Election Digitalization: How Ready is Indonesia? [08/07/2022 | PREFICIENCY \(AKSARA KAWAN LAN\)](https://lan.go.id/?p=9942), <https://lan.go.id/?p=9942>

³⁶ www.antaranews.com, 09/22/2014

4. Increase participation: i-Voting also increases the chances of voter participation. If in a conservative election system or in e-voting voters have to come to a polling station location to cast their vote, this will certainly make things difficult for people with disabilities. However, in the i-voting concept, voters do not have to come to the polling station, they can give their choice from anywhere, so it will open up a wide space for participation. i-voting also increases opportunities for voter participation. If in a conservative election system or in e-voting voters have to come to a polling station location to cast their vote, this will certainly make things difficult for people with disabilities. However, in the i-voting concept, voters do not have to come to the polling station, they can give their choice from anywhere, so it will open up a wide space for participation.³⁷

Inventory of Election Digitalization Problems

1. Voter Data: improvements from upstream are that e-KTP data must be verified one hundred percent (100%) correct and valid where the requested data can be immediately available accurately and in real time. Correction of population data from birth to death and population movements must be recorded accurately. Therefore, the convenience of residents in reporting must be made very easy and recorded accurately.
2. Infrastructure: The availability of internet networks must reach all of Indonesia which is separated by islands, mountains and forests and according to Kominfo data, in April 2019 there were still 24,000 villages that had no access to internet services.³⁸ Digital technology infrastructure continues to be implemented by the Ministry of Communication and Information (Kemeninfo) throughout the country, where equitable development of digital infrastructure is the foundation for accelerating national digital transformation, while reducing the digital divide.³⁹
3. Data security: Information Technology always prioritizes data security so that it does not leak to other parties or can manipulate data, both voter data and voting, therefore data security must be a very important priority.
4. Public knowledge: Regarding this matter, in 2018 data from the Association of Indonesian Internet Service Providers (APJII) and Polling Indonesia, recorded that the Indonesian population who were internet literate was only around 64.8 percent of the total population of Indonesia.⁴⁰
5. Direct, public, free, confidential, honest, fair (luber jujur) as regulated in Article 2 of Law no. 7 of 2017 (Election Law) where when e-voting or i-voting takes place it is safe from pressure or receiving direction from other parties in voting which is difficult to monitor.

³⁷ Discourse on Election Digitalization: How Ready is Indonesia? [08/07/2022 | PREFICIENCY \(AKSARA KAWAN LAN\)](https://lan.go.id/?p=9942), <https://lan.go.id/?p=9942>

³⁸ www.kominfo.go.id/16/04/2019

³⁹ Digitizing Elections, Minister of Communication and Information Encourages Comparative Study of Implementation in Other Countries, PRESS RELEASE NO. 100/HM/KOMINFO/03/2022, [https://www.kominfo.go.id/content/detail/40725/siaran-pers-no100hmkominfo032022 -about-digitalization-pemilu-menkominfo-besar-studi-banding-penerapan- in-other-country/0/press_release](https://www.kominfo.go.id/content/detail/40725/siaran-pers-no100hmkominfo032022-about-digitalization-pemilu-menkominfo-besar-studi-banding-penerapan-in-other-country/0/press_release)

⁴⁰ <https://apjii.or.id/berita/d/survei-apjii-user-internet-di-indonesia-tembus-215-juta-orang>

A Necessity

Professor of Political Science at Airlangga University Ramlan Surbakti said, "The use of information technology tools is a necessity for the KPU and Bawaslu to expedite the process of carrying out their respective duties and authorities. However, what is most important in digitizing elections is not only the system, but also the human resources behind the information technology tools. The KPU and Bawaslu need to ensure that all personnel behind IT (information technology) devices understand and internalize the fast, accurate and efficient character of IT. "The mentality of employees who are long-winded, as long as the task is carried out, and without control is not suitable for IT," he said.⁴¹

On the other hand, Ramlan reminded the KPU to prepare a text of the Government Regulation in Lieu of Law (perppu) to be communicated to the President and Commission II of the DPR. Because currently, one of the Sirekap information technology tools that has been used since the 2020 Pilkada and will be used again for the 2024 Pilkada and Pilkada is still only informal to provide information to the public regarding the election results. Meanwhile, the vote recapitulation process continues to be carried out in stages and is carried out manually. According to Ramlan, the time required for vote counting and recapitulation is up to 35 days, which is very long. "This is the longest in the world," said Ramlan.⁴²

KPU member Arief Budiman said, "in the 2020 Simultaneous Pilkada, the KPU actually proposed in a joint meeting with the DPR and the government, that Sirekap be used as the official result of vote recapitulation. However, the proposal at that time had not been approved. In the 2020 Simultaneous Pilkada, the data entered by Sirekap reached 98.9 percent of the total polling stations. There is only 1 percent left that has not been sent quickly. Some time ago we communicated with the Minister of Communication and Information who said that in 2023 all regions in Indonesia will be connected (to the internet). If you build a system now, it will be connected by 2023, prepare human resources. "In 2024, this could be an official result," he said.⁴³

In a weekly webinar on the 2024 Election Dialogue Series, the Directorate General of Politics and PUM of the Ministry of Home Affairs with the theme "Challenges of the Information and Data Speed Era in Facing the 2024 Election" online on Monday (17/4/2023). Director of National Vigilance, Directorate General of Politics and PUM, Ministry of Home Affairs, Sri Handoko Taruna said, "This webinar activity has very strategic value, especially in the midst of the ongoing 2024 Election stages. "The 2024 election days are now underway, the implementation of this election has challenges related to the speed of information and data which we must all address in accordance with our digital developments entering the 4.0 era."⁴⁴

⁴¹ <https://www.kompas.id/baca/pemilu/2022/03/03/technology-information-untuk-menrespon-tantangan-kompleksitas-pemilu>

⁴² Ibid

⁴³ Ibid

⁴⁴ Directorate General of Politics and PUM Ministry of Home Affairs, April 18, 2023, [Polpum Admin](https://polpum.kemendagri.go.id/ditjen-politik-dan-pum-kemendagri-bangun-literasi-digital-jelang-pemilu-2024/) Directorate General of Politics and PUM, Ministry of Home Affairs, Builds Digital Literacy Ahead of the 2024 Election <https://polpum.kemendagri.go.id/ditjen-politik-dan-pum-kemendagri-bangun-literasi-digital-jelang-pemilu-2024/>

The Director General of Politics and PUM of the Ministry of Home Affairs, Bahtiar, when opening this webinar, said, "This theme was raised to provide digital literacy for the public and apparatus. This is because understanding regarding digital is still lacking. Based on his experience when he was Head of the Ministry of Home Affairs' Information Center (Kapuspen), Bahtiar assessed that the role of information is very large and has a dangerous impact if it is not addressed quickly. That quick phrase becomes very important. Data and information that is good and true or accurate is not enough. That quick word is very important. "This speed seems to be speed, state administration in this case is the emphasis."⁴⁵ Bahtiar added, "In holding elections, the government needs to act or respond quickly to developing information. "In this way, data or information that has the potential to damage the 2024 election climate can be addressed swiftly and followed up in a measurable manner."⁴⁶

Comparison with Other Countries

The Implementation of Elections in Several Countries Can Be Seen in The Table Below:

No	Country	Conventional	e-voting	Notes
1	Indonesia	X		It is hoped that e-voting will be carried out
2	Singapore	X		
3	Philippines		x	
4	China	X		
5	India		x	
6	South Korea		x	
7	Japan		x	
8	Brazil		x	
9	Kazakhstan		x	
10	United States of America		x	
11	German		x	
12	Belgium		X	Will return to conventional elections
13	Norway		X	
14	Nepal		X	
15	Russia		X	
16	Pakistan		x	
17	Arab		x	
18	Dutch		x	Will return to conventional elections
19	Ireland		x	Will return to conventional elections
20	Spanish		x	
21	English		x	Will return to conventional elections
22	Australia		x	
23	Baltic		x	

⁴⁵ Ibid

⁴⁶ Ibid

24	Nigeria	x	
25	Estonia	x	Since 2005 it has been conducting e-voting

Source: taken from various sources

From the table above, it can be seen that many countries have conducted elections this way-e-voting or i-voting and of course the government and election organizers (KPU) have conducted comparative studies on how to carry out elections using Information Technology and on a small scale, Indonesia has conducted elections using e-voting.

Conclusion

The research results show that the use of technology in elections is not a hallucination, where the use of technology or digitalization of elections in the democratic party process is a hope that can be realized. Moreover, in the industrial era 4.0, the use of technology in elections is believed to be able to make it easier for people to exercise their voting rights. The use of digital tools in elections also creates efficiency, both in terms of budget and human resources, the energy expended by election organizers is no longer too large compared to elections with a conventional system.

The use of technology in elections is expected to be able to carry out transparent elections and prevent election violations due to negligence or limited supervision (human error). Moreover, the use of technology can facilitate the implementation of all stages of elections and strengthen election supervision, even though the number of officers is limited.

Remembering that elections are part of democracy to continue leadership where various countries have digitized elections. From the results of International Idea's 2019 research on 106 countries, it was concluded that digitizing elections is the right step to produce leaders from democratic parties who are democratic, transparent, honest and fair⁴⁷ Even though no country has succeeded in using election digitalization, two European countries, the Netherlands and Germany, will again hold elections conventionally.

Of the two (2) sides of election digitalization, the success and failure of holding election stages using technology I can be of concern to the government as a form of evaluation of weaknesses in the election digitalization system for later improvement. Digitizing elections is a strategic idea that answers current public needs and can become a new paradigm in organizing elections towards a Great Indonesia.

Suggestion

The government, led by the Ministry of Information, should realize its promise that all regions of Indonesia will have internet access without hindering ministers who are involved in corruption cases because information technology or digitalization of elections can increase

⁴⁷ <https://kepri.antaranews.com/berita/132757/digitalisasi-pemilu-2024-menuju- pesta-rakyat-yang-demokratis>

savings, efficiency and minimize casualties due to fatigue in carrying out their duties as election officials. In the end, discourse without planning and realization is just empty talk.

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SMART LEARNING ENVIRONMENT BASED ON INTERACTIVE WEB

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Abstract: *Smart Learning System is a media for teaching and learning activities in the form of a virtual class where the education curriculum in Indonesia is relatively dense and automatically there is a lot of material that must be taught but with limited time and one of the most influential aspects of technology is the Internet of Things (IoT). The Internet of Things is an extension of the internet connection to physical devices and daily things. The aim of this research is to understand the concept of a Smart Learning Environment, to know the characteristics of a Smart Learning Environment (SLE) and to know the benefits for students of the Smart Learning Environment learning model based on interactive web. The methodology used is qualitative with a literature study approach. The conclusion of this research is that a smart learning environment based on interactive web is useful and effective to improving the quality of learning where students can learn anywhere and anytime and can interact via the web and mentoring by teachers.*

Keywords: Smart Learning Environment, Web, Education Technology

Introduction

Various challenges and changes in the educational environment require innovation and integration of technology. Here is some background on the topics driving the development of intelligent learning environments (SLEs). Technological Development: The rapid development of information and communication technology has changed the way we learn and access information. Challenges arise when the education system fails to keep up with technological advances. Therefore, adaptation is necessary to realize the full potential of technology in education. Changing the learning paradigm. Our understanding of the diversity of learning styles, understandings and needs of students continues to grow. SLE emerged as an answer to the need for a learning approach that can be adapted to the unique characteristics of each learner.

Globalization of education: There is an increasing demand for education that can be accessed from anywhere in the world, creating a challenge to provide flexible and globally accessible learning environments. The aim of SLE is to overcome geographical limitations and provide wider access to education. Student Engagement: In traditional learning environments, student engagement is often an issue. SLE seeks to provide solutions by providing an interactive, collaborative and engaging platform to increase student engagement and motivation.

Distance learning challenges: SLE becomes especially important in distance learning situations where the challenges of communication and interaction between students and teachers become more apparent. SLE is designed to enable effective interaction and provide a learning experience similar to face-to-face learning. Personalization of Learning: SLE emerged in

response to the need for personalized learning. Each student has different needs and learning styles, and SLE aims to provide an environment that adapts to individual preferences and needs.

Analyzing educational data: As large amounts of educational data accumulate, managing and interpreting this information becomes a challenge. SLE aims to use data analysis to gain deeper insight into learning progress, learning effectiveness, and adaptation needs.

It is hoped that by understanding the context of this problem, the development and application of SLE can provide better solutions to the challenges of the world of modern education.

Intelligent Learning System “SLE” is a medium for implementing teaching and learning activities in the form of virtual classes. The Indonesian curriculum is relatively dense and automatically teaches more material, but time is limited. Therefore, we need lessons that help us achieve our curriculum goals. Virtual classes allow you to study anytime and anywhere without worrying about time and location.

Theoretical Framework

This theoretical framework is the basis for reviewing various definitions of SLE using qualitative research methods, the revision of which will become the basis for building a definition of SLE. We understand SLE from an inclusive point of view in the sense of adaptation and personalization of physical and virtual scenarios according to the needs of teaching and learning in each specific context.

Formulation of the Problem

1. What is the concept of Smart Learning Environment?
2. How to analyze the characteristics of a Smart Learning Environment (SLE)?
3. What are the benefits for students of the Smart Learning Environment learning model based on interactive web?

Research Methods

This research is a deductive qualitative research with a literature study approach as the object of research and study.

Discussion

Education Technology

The conceptual development of Educational Technology (Edutech/ET) can be seen through the evolution of the definition of Edutech from 1963 to 2004. The following is a summary of the development of the definition of Edutech during that period:

1. 1963 - 1970s: The Beginning of Edutech as a New Science
Definition: Initially, Edutech was considered a “new science” that dealt with the use of tools and media for educational purposes. This includes the use of aids such as projectors, radio and television in learning.
Focus: Use of media and tools in learning.

Educational technology is a science that discusses media, methods and resources in the teaching and learning process.

The 1963 definition of Edutech means that Edutech is a science that focuses on the use of media (projectors, radio, television, etc.) and methods in the context of the teaching and learning process.

This definition focuses on the role of tools and media in supporting the educational process.

This definition It reflects an approach that focuses on the use of media in education. Edutech at the time was associated with the use of physical devices as learning tools and a shift from a media-centric approach to a broader understanding of the educational process. Although this definition still emphasizes the role of media, it opens the door to a more comprehensive view of edtech as a science that covers various aspects of the teaching and learning process. James Finn is one of the key figures in the development of Edutech. His contributions and ideas can be seen in this definition and influenced the subsequent development of Edutech.

Definition in 1963 Not to mention the development of computer technology that was developing at that time. The main criticism of this definition is that it does not take adequate account of the role of computer technology in education, the importance of which in education has increased over time.

Limitations in this definition, Computer technology has become a driving force in the development of a more comprehensive and modern definition of edtech, especially considering its role. Later definitions include computer technology and consider edtech to be more than just the use of physical media. The emergence of new definitions allows Edutech to consider more modern technological developments and a more holistic approach to education. As time goes by, Edutech continues to adapt to changes in the fields of education and technology.

2. 1970s - 1980s: Expansion of Edutech Coverage

Definition: Edutech is starting to encompass the use of computer technology and software in education. Edutech is defined as the use of "communication and information technology" in the educational process.

Focus: Development of computers and educational software.

Edutech is the application of science and technology in planning, implementing and evaluating learning programs."

This definition of Edutech This includes the application of science and technology in the planning, implementation and evaluation of learning programs and reflects a broader understanding of education than just focusing on media and tools. According to Silver, edtech is a science that combines the concepts of science and technology with education to plan, implement and evaluate learning programs.

Edutech includes the application of scientific principles in curriculum development and teaching methods involving the use of technology as a tool to support the educational process, including the entire learning cycle, including program planning, learning implementation, and evaluation of results.

Edutech at that time, it was not just a tool or media, but a scientific discipline that combined knowledge and techniques into the development, implementation and evaluation of learning programs.

This definition supports Edutech's status as a growing field with applications in a variety of educational environments.

Criticisms of these Definitions may include ambiguity regarding the meaning of "science" and "technology" as well as a lack of specificity regarding the nature of the technology in question. In addition, this definition does not fully cover aspects of computer technology that were increasingly relevant at the time. As technology developed, subsequent definitions began to emphasize the role of computer technology in educational technology.

1972 definition This marked a broadening of the understanding of edtech from purely the use of physical media to a more holistic approach that includes the application of science and technology throughout the learning cycle. This reflects the evolution of edtech as a scientific field that is increasingly comprehensive and relevant in an era of increasingly rapid technological progress.

3. 1990s: Development of the Internet and E-Learning

Definition: With the development of the Internet, Edutech began to combine the concepts of e-learning and online education. Edutech refers to the use of "computer and internet technology" in learning.

Focus: E-learning, global access, and internet development.

Edutech is the science of the principles and challenges of planning, designing, using and evaluating the learning environments in which people and their teachers live, with the aim of improving the quality of teaching and learning.

The 1977 definition of Edutech emphasized several important points, viz:

- a. Learning Environment
Edutech focuses on learning environments where students and teachers interact. This includes physical aspects and learning contexts.
- b. Planning and Evaluation
Edutech includes planning and evaluating learning environments to improve the quality of teaching and learning.
- c. Improvement Objective
Edutech's main goal is to improve the quality of teaching and learning.
- d. ET vs IT
This definition Try to differentiate between educational technology (Edutech/ET) and information technology (IT). Edutech refers to the use of technology in an educational context, while IT more generally refers to the use of information technology that is not focused on an educational context. In other words, ET emphasizes the role of technology in improving the educational process.
- e. ET as a Process
This definition We emphasize that ET is not only about the use of specific tools and technologies, but also includes the processes of planning, creating, using, and evaluating learning environments. This reflects the understanding that religious education requires systematic planning steps to achieve educational improvement.
- f. ET as a Field
This definition emphasizes that ET is a scientific discipline that studies the principles and issues related to the learning environment. This confirms ET's

status as a developing field of science and contributes to understanding and improving education.

g. Theory or Profession

This definition covers the theoretical and practical aspects of RE not only about theory but also about the practice of planning and using technology in education. This reflects the diversity of roles that RE experts can take on, both in research contexts and in practical implementation in education.

1977 Definition of Edutech/ET This highlights the role of ET in planning and creating learning environments that support better teaching and learning. This shows that ET is more than just the use of tools and technology. This includes a deeper understanding of the educational process and how technology can improve it.

4. The 2000s: Integrated and Multidimensional

Definition: The definition of Edutech is increasingly integrated and multidimensional. The definition of Edutech is increasingly integrated and multidimensional. Edutech is defined as the use of "information and communications technology" to support the educational process, which includes learning, management, and decision making.

Focus: Integration of technology into various aspects of education, including online learning, learning management, and data analysis.

At the beginning of the 20th century, the development of the concept of visual learning focused on the use of visual media such as pictures, graphs and visual projections in education. This method helps students better understand and remember information through visual images.

Growth of Massive Open Online Courses (MOOCs): In the mid-2000s, MOOCs began to emerge as online learning platforms that allowed thousands of people around the world to access courses from top universities for free or at low cost. The emergence of mobile devices has increased the use of mobile learning. Access learning materials anytime, anywhere with mobile learning apps.

5. 2004: UNESCO Definition of Edutech

Definition: UNESCO provides a comprehensive and holistic definition of edutech as the use of "technology to improve the quality of education". This definition includes the use of technology in all aspects of education, including learning, management and administration.

Focus: Improving the quality of education with technology.

The evolution of the definition of edutech in this period reflects rapid technological developments and paradigm shifts in education. Initially, edutech was associated with the use of media, but as technology advances, the focus shifts to the use of computers, the Internet and information technology. In the 2000s, Edutech's approach became more integrated and multidimensional, covering various aspects of education.

The definition of Edutech given by UNESCO in 2004 emphasizes the importance of technology in improving the overall quality of education. In all these stages, Edutech continues to adapt to technological developments and educational demands, making it a dynamic and important field in the world of modern education. Analyze the "understanding of Edutech" from the meaning contained in each definition.

In the early 21st century, the concept of e-learning developed and online learning became more popular. Educational institutions are starting to offer complete programs

online. Today, ET is increasingly integrating artificial intelligence (AI) for adaptive learning. This includes personalizing learning based on our students' progress.

The evolution of educational technology concepts reflects technological advances and responses to changing educational needs and requirements. From early visual learning approaches to today's AI-based learning, educational technology continues to change to support more effective and inclusive learning.

Understanding the development of concepts in educational technology is important because it provides several important benefits and insights in the use of technology in the world of education and the educational environment. This is why it is important to know the conceptual evolution of educational technology:

- a. **Keeping Up with Technological Advancements**
Technology continues to develop rapidly. Knowledge of concept development in educational technology keeps you up to date with the latest technological developments that can improve learning.
- b. **Increasing Learning Effectiveness**
Understanding concept development helps educators select and apply more effective learning tools and methods. This improves student learning outcomes.
- c. **Personalization of Learning**
The development of educational technology concepts facilitates the concept of personalized learning. This allows training to be tailored to individual needs and learning styles.
- d. **Inclusion and Accessibility**
Knowing conceptual developments helps promote inclusivity in education. Technology can be used to facilitate accessibility for students with special needs
- e. **Improve Digital Skills**
Learning about conceptual development helps students and educators develop digital skills, which are valuable assets in an increasingly digitally connected world.
- f. **Optimizing Educational Management and Administration**
In the context of educational management, conceptual developments help educational institutions manage resources, administration and evaluation more efficiently.
- g. **Facing Future Challenges**
An understanding of conceptual developments helps educational institutions and practitioners in facing future challenges, such as distance learning, educational policy, and changes in student needs.
- h. **Increasing Collaboration and Research**
Through understanding conceptual developments, we can better collaborate with fellow educators and researchers in developing educational innovations.
- i. **Developing an Educational Vision and Strategy**
An understanding of conceptual developments helps educational institutions develop educational visions and strategies that are relevant to the demands of the times.
- j. **Advancing Education Globally**
By sharing knowledge about concept development, we can contribute to educational progress around the world and support countries and communities seeking better access to education.

Understanding conceptual developments in Educational Technology helps ensure that technology is used wisely and effectively in educational contexts, and helps create better learning experiences for all.

Smart Learning Environment

Smart Learning Environments (SLE) are physical environments enhanced with adaptive and context-aware digital devices to facilitate better and faster learning. With the development of ICT and increasing innovation in education, researchers are starting to develop concepts on how to make learning environments more effective and efficient and engaging on a large scale and sustainably. A smart learning environment is a smart, open, integrated digital virtual learning space that is student-centered.

SLE is a technology-based learning Environment that is adaptable and provides the right support, including instruction, feedback, coaching, and resources at the right place and time. Timing is based on individual learner needs and can be determined by analyzing learning behavior, performance, and online and real-world situations.⁴⁸ With the support of technology, smart classrooms become places where teachers and students can gain rich and in-depth teaching and learning experiences that they have never experienced before.⁴⁹

Zhu and friends.⁵⁰ emphasize that smart learning is based on two different technologies, viz. (1) smart devices and (2) smart technology. Zhu further stated that “the essence of smart education is the use of smart technology to create a smart environment, so that smart pedagogy can provide personalized learning services and empower students. When using intelligent technologies such as cloud computing, learning analytics, or focusing on big data, how to capture learning data, analyze and direct it to improve learning and teaching and support the development of personalization and adaptive learning explains that the main elements of intelligent learning are based on equipment, tools, technology, media, textbooks, teachers and students, and others. All of these main elements must be arranged according to constructivist learning theory, in accordance with blended learning and modern teaching theories. Although there are differences between smart devices and smart technology, they are interrelated as neither technology stands alone.⁵¹

In addition, Zhu explains ten main characteristics that define SLE, among others:

1. Location: real-time intelligent learning locations have important information systems that must be adapted to the student's content and situation;
2. Context: explore different scenarios of action and information;

⁴⁸ Klimova, B. F., & Kacetl, J. (2015). Hybrid learning and its current role in the teaching of foreign languages. *Procedia – Social and Behaviour Sciences*, 182, 477-481. <https://doi.org/10.1016/j.sbspro.2015.04.830>

⁴⁹ Li, B., Kong, S. C., & Chen, G. (2015). Pengembangan dan validasi inventaris kelas pintar. *Smart Learning Environments*, 2(1). <https://doi.org/10.1186/s40561-015-0012-0>.

⁵⁰ Zhu, Z., Sun, Y., & Riezebos, P. (2016). Memperkenalkan kerangka kerja pendidikan cerdas: elemen-elemen inti untuk pembelajaran yang sukses di dunia digital. *International Journal of Smart Technology and Learning*, 1(1), 53. <https://doi.org/10.1504/ijsmarttl.2016.0781> 59

⁵¹ Zhu, Z., Yu, M. H., & Riezebos, P. (2016). Kerangka kerja penelitian pendidikan cerdas. *Smart Learning Environments*, 3(1). <https://doi.org/10.1186/s40561-016-0026-2>

3. Social awareness: awareness of social relationships;
4. Interoperability: establishing standards for different sources, services, and platforms;
5. Current Connection: Provides continuous service when any device is connected;
6. Adaptation: incentivizing learning resources according to accessibility, preferences and desires;
7. Everywhere: predict student requests until they are clearly expressed, providing visual and transparent access to learning resources and services;
8. Recording: record the learning data path and analyze it thoroughly, then make reasonable judgments, make suggestions and provide incentives to provide services;
9. Interaction: conveys information, including posture and facial expressions;
10. Engagement: learning from experience as a form of interaction with a technology-rich environment. Essentially, intelligent learning is about real-time places to adapt content to students' circumstances.⁵²

The learning environment paradigm is closely related to the core foundations of the Open Learning Environment (OLE) initiated by Hannafin & Land: Psychology, Pedagogy, Technology, Culture and Pragmatics. This OLE approach is based on a paradigm where students decide what, where, when, and why they want to learn, so that learning is independent. Another prominent characteristic is that not all students have good learning abilities. There are low ability students who need a learning environment.⁵³

Classroom management is the provision of an effective learning environment, including the strategies used by teachers to create an effective and productive classroom experience. Also, if classroom management is how classroom activities, teaching, physical structure, effective time, enjoyment of learning, and minimizing problems and other distractions are organized.⁵⁴ This connection according to Brooks.⁵⁵ The central issue of how students learn and how teachers teach will have important value in educational reform. As a science center, classroom teaching is an interactive activity that requires intensity and structure. As thinking about appropriate classroom management changed, the old paradigm emphasized and enforced rules to control student behavior. The new paradigm, in contrast, focuses more on students' self-regulatory needs. New trends in classroom management focus on guiding students towards self-discipline and reducing external control over them. Therefore, managing a class means disciplining students' learning and learning.⁵⁶

Classroom management and classroom discipline should be used interchangeably. Although the two are often used interchangeably, they have different characteristics. Classroom management refers to what usually happens in the classroom, while classroom discipline refers to controlling specific student behavior. Therefore, classroom management is closely related

⁵² Ibid

⁵³ Reigeluth, Charles, M. (1999). *Instructional-Design Theories and Models, A Paradigma of Instructional Theory*. (Volume II). New York: Routledge Taylor and Francis Publishers.

⁵⁴ Slavin, Robert E. (2009). *Psikologi Pendidikan. Teori dan Praktek*. Edisi Kedelapan. Jakarta: Indeks Person.

⁵⁵ Brooks, Brooks. (1993). *In search of understanding: The Case for Constructivist Classrooms*. Alexandria, VA: Association of Supervision and Curriculum Development..

⁵⁶ Evertson M. Carolyn, Emmer T. Edmundt. (2009). *Classroom Management for Elementary Teachers*. Michigan University: Person Merrill

to structured procedural management related to learning activities in the classroom.⁵⁷ Today, the discipline focuses on self-control and control to participate in learning. Wolfgang provides discipline management in the classroom through understanding and applying the elements of classroom management, especially in the form of classroom object design, group organizing, creative teaching, and managing the school environment.⁵⁸

The importance of classroom management is based on:⁵⁹

1. Various things will continue in the classroom as students carry out and need information, guidance and encouragement;
2. Teachers cannot predict everything that happens in class
3. Students form opinions and perceptions about learning causing increased responses;
4. Challenging teachers work hard to motivate students to have fun learning.

Student characteristics are one of the factors that teachers must pay attention to when carrying out the teaching and learning process. This is because student characteristics primarily determine the learning outcomes achieved and learning activities carried out, as well as the appropriateness of assessment for students. Therefore, the learning environment must be designed according to student characteristics. The traditional classroom learning environment, where students gain a lot of knowledge passively from the teacher, is understandably less suited to the characteristics of 21st century students, who represent the digital native generation. They are people who were born and raised with digital technology (internet, computers and other devices) and are able to quickly acquire knowledge from sources other than teachers.

Other characteristics of the digital native generation are: (1) multi-tasking; (2) want to obtain information quickly; (3) it is easier to understand images than text; (4) prefer active and interactive learning; (5) expect rewards if you successfully complete something; (6) making technology a part of his life.

The physical environment is enhanced with technology and complemented by a virtual teaching environment to optimize training activities. Expanded methods and strategies, as well as expanded assessments, foster cohesion between the two environments (in-person and virtual), creating a rich context that opens up new learning opportunities for all students. Likewise, smart technology combines community experiences and ergonomic and inclusive SLE models.

SLE offers many models and aspects, and there are advantages and disadvantages to supporting SLE through media that can be used by students, teachers and students to facilitate learning anytime and anywhere. Yusufu and Nathan⁶⁰ presents a model for every student, who can learn

⁵⁷ Walters, Jim, Frei, Shelly. (2007). Managing Classroom Behavior and Discipline. USA: Corrine Burton, MAEd

⁵⁸ Wolfgang. (2005). Solving Dicipline and Classroom Management Problems; Methods and Models for Today's Teachers 6th Ed. United States of America: Wiley & Sons, Inc

⁵⁹ Seifert, Rosemary. (2009). Global Text,Educational Psychology. Second Edition. Switzerland: Zurich, Jacobs Foundation.

⁶⁰ Yusufu, G., & Nathan, N. (2020). Model baru pendidikan cerdas untuk pengembangan sistem universitas cerdas. Di Konferensi Internasional Matematika, Teknik Komputer dan Ilmu Komputer 2020. New York: IEEE. <https://doi.org/10.1109/icmcecs47690.2020.240912>.

anywhere and at any time, while meeting their individual needs. Creating SLE dimensions creates confusion, because the model must determine what SLE is to implement smart education. In this way, within the SLE, other components within it will be taken into consideration, namely "smart technology", "smart learner" and "smart pedagogy". The "smart learner" component is considered successful, because it considers the learning community in a broad sense. However, if this component is maintained, a "smart teacher" or "smart instructor" component must be created, because everyone involved in the educational process can have the role of educator or learner, or even as assessor, guide, etc. The description of the "smart learning environment" component can cause confusion, because the component states that the SLE can be either a smart physical classroom or a virtual classroom, when it should be a combination of both. When model diagrams and associated descriptions are presented, transfer to practice is not greatly facilitated, even though the intent of the SLE is expressed appropriately.

SLE uses an interactive web, the model presented in this study, provides an intelligent learning approach from a pedagogical perspective that can support its translation into practice. The SLE proposal requires a combination of virtual and physical environments so that educational professionals and students can communicate, reflect and collaborate, that is, perform educational tasks optimally. Therefore, these models must consider the methodological, evaluative, technical, and spatiotemporal choices that best suit students. Considering that there are models that can be adapted to each level of education, the proportion of virtuality and presence of SLE can be changed depending on the educational goals.

Interactive web-based SLE learning opportunities are designed with audio and audiovisual literacy and skills in mind. If there is something you don't understand, you can ask directly and get a different answer, or if you are not satisfied with the answer on the answering machine, you can ask the teacher and the teacher will give you the answer. Questions are asked to make learning very interesting and allow students to work with different learning styles.

The benefits of using interactive Web-based SLE are as follows:

1. Personalization: SLE allows students to learn in a way that suits their needs and learning style
2. Accessibility: SLE allows students to learn anytime and anywhere.
3. Engagement: SLE makes learning more interactive and engaging for students.
4. Collaboration: SLE allows students to work together and learn from each other.
5. Data analysis: SLE provides data that can be used to improve learning.

The challenges in using Web-based SLE are as follows:

1. Availability of technology: SLE requires access to adequate technology
2. Digital skills: Teachers and students need to have sufficient digital skills to use SLE.
3. Financing: SLE implementation can require significant costs.
4. Cultural change: SLE requires cultural change in schools and among educational stakeholders.

Interactive web-based SLE has been proven to have a positive impact on student learning outcomes. This environment can stimulate students' learning motivation, encourage active

learning, and improve academic performance.⁶¹ Factors such as peer interaction, learning motivation, educators' and students' preferences for SLE, and learning strategies play an important role in increasing the success of the learning process in a smart classroom environment. Successful implementation of an intelligent learning system requires consideration of student learning styles and characteristics of the learning environment.⁶²

Paying attention to these factors, educators can create a conducive learning environment so as to increase student learning success.

Massachusetts Institute of Technology (MIT), one of the world's leading campuses, has long developed various intelligent technologies for use in SLE. MIT collaborated with Microsoft Research to conduct collaborative research as part of the iCampus initiative. The goal is to develop and demonstrate technologies that can bring revolutionary change to higher education curricula.⁶³

The five projects that are the main focus of this research include:⁶⁴

1. iLabs, namely a website for designing experiments and collecting data from laboratories remotely;
2. iMOAT, namely a website used to manage the student essay assessment process on a large scale;
3. TEAL, which is a website that combines lectures, simulations, and hands-on experiments to create collaborative learning experiences through technology;
4. XMAS, namely a tool that helps students select, annotate, and share video clips in online discussions and presentations;
5. xTutor, namely a tool that helps to develop and manage online assignments which is equipped with interactive tutoring or guidance. These innovations have had a broad and significant impact throughout MIT, even playing an important role in transforming learning around the world, such as the University of Cambridge, the University of Rhode Island, and so on.

Conclusion

1. Smart Learning Environment Concept (SLE)
Smart Learning Environment (SLE) is an intelligent and adaptive learning system that utilizes technology to improve student learning experiences and outcomes. SLE, among other things, integrates various important elements:

⁶¹ Hu, Y., Huang, J., & Kong, F. (2022). College Students' Learning Perceptions and Outcomes in Different Classroom Environments: A Community of Inquiry Perspective. *Frontiers in Psychology*.
<https://doi.org/10.3389/fpsyg.2022.1047027>

⁶² Almutairi, N. I. L. F. H., Almutairi, N. F. L. F. H., & Alazemi, N. B. F. (2022). Higher Education and Smart Education System: The Impact of Learning Style and Environmental Characteristics in the State of Kuwait. *International Journal of Interactive Mobile Technologies (Ijim)*. <https://doi.org/10.3991/ijim.v16i13.30607>

⁶³ iCampus. (2006). icampus.mit.edu

⁶⁴ iCampus. (2011). *Innovating Education Sharing Technology*.

- a. Technology: (1) Learning technology: online learning platforms, learning apps, educational software, and immersive technologies such as VR and AR; (2) Information and communication technology: internet, wireless networks, mobile devices, and sensors; (3) Artificial intelligence (AI): adaptive systems, learning data analysis, and personalization of learning.
- b. Pedagogy: (1) Student-centered learning: students become active agents in their learning process; (2) Personalized learning: content, activities, and assessments are tailored to students' individual learning needs and styles; (3) Collaborative learning: students work together and learn from each other; (3) Contextual learning: learning connected to the real world and students' interests.
- c. Environment: (1) Smart classroom: equipped with technology that supports interactive and collaborative learning; (2) Digital library: provides access to various online learning resources; (3) Online learning communities: connecting students with teachers, experts and peers.

Goals of SLE:

- a. Improving student learning outcomes
 - b. Increase student motivation and engagement.
 - c. Preparing students for a future that requires 21st century skills.
 - d. Building a dynamic and collaborative learning community.
 - e.
2. Analyzing the characteristics of smart learning environments (SLEs) requires a deep understanding of what makes a learning environment “smart” and how this impacts the learning experience. Here are some steps you can take when analyzing the characteristics of SLE:
 3.
 - a. Technology and Infrastructure: Review the technology used in SLE. Digital learning platforms, applications, hardware (smart devices, sensors, etc.), and network infrastructure. Consider the technology's ability to accommodate different learning styles, student needs, and student-teacher interactions.
 - b. Interactivity: Analyze how well the SLE supports student interaction and participation. This may include elements such as online discussions, collaborative platforms, and interactive quizzes and simulations that allow students to actively participate in the learning process.
 - c. Personalization: Evaluate SLE's ability to provide a personalized learning experience. It is a machine learning algorithm that adapts learning materials to each student's progress and needs and provides customized content recommendations.
 - d. Data Analysis: Explore SLE's capabilities in collecting and analyzing learning data. Analyzing this data provides insight into student progress, learning patterns, individual needs, and the effectiveness of teaching methods.
 - e. Accessibility: Determine the extent to which the SLE is accessible to different student groups, including students with special needs or limited physical access. This may include the availability of accessibility features such as voice-based text, font customization, and accessible navigation.

- f. Flexibility and Mobility: Assess whether SLE supports flexible learning and mobility. This may include the possibility of synchronous or asynchronous learning, as well as the possibility of access from different devices (computer, tablet, mobile phone).
 - g. Security and Privacy: Ensure SLE adheres to appropriate data security and privacy standards. Moreover, many SLEs collect personal and learning data from students.
 - h. Teacher involvement: Consider whether SLE fosters teacher participation and creativity in the design and delivery of learning materials. This can include custom content creation assistance, intuitive learning tools, and appropriate technical support.
 - i. Effectiveness Evaluation: Finally, evaluate the effectiveness of the SLE in achieving learning objectives. This may include measuring student progress, engagement, and student and teacher satisfaction.
4. The interactive web-based Smart Learning Environment (SLE) learning model offers a number of benefits for students, including:
 - a. Increased accessibility: The web-based learning model allows students to access learning materials anytime and anywhere as long as they have an Internet connection. This provides flexibility and allows students to learn at their own pace and schedule.
 - b. High interactivity: Web-based SLE models often offer a variety of interactive features, such as instructional videos, simulations, interactive tests, and online discussions. This interactivity allows students to better focus on their learning, deepens their understanding of course content, and increases information retention.
 - c. Customize your learning materials: students have access to a variety of learning resources, including text, images, videos and other interactive resources. You can also choose materials that suit your learning needs and interests, making your learning experience more personalized and effective.
 - d. Collaboration and project-based learning: SLE platforms often provide collaboration features that allow students to work together or online on assignments and projects. This gives students the opportunity to develop social, collaboration, and problem-solving skills through teamwork.
 - e. Fast feedback: Web-based learning models allow you to provide immediate feedback to students through automated assessments, discussion forums, or online mentoring. This allows students to deepen their understanding of the material and quickly improve their academic performance.
 - f. Monitoring and Progress Monitoring: SLE systems often come with the ability to monitor and track student progress. This allows teachers and instructors to monitor student progress in real time and provide additional support to students as needed.
 - g. Availability of various resources: web-based SLE models can integrate various learning resources, such as academic articles, e-books, learning videos, and other interactive learning materials. This expands the range of learning materials available to students and supports lifelong learning.

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THE IMPACT OF PERCEIVED RISK TOWARD USE BEHAVIOR IN M-COMMERCE INDUSTRY: EXTENSION OF UTAUT 2

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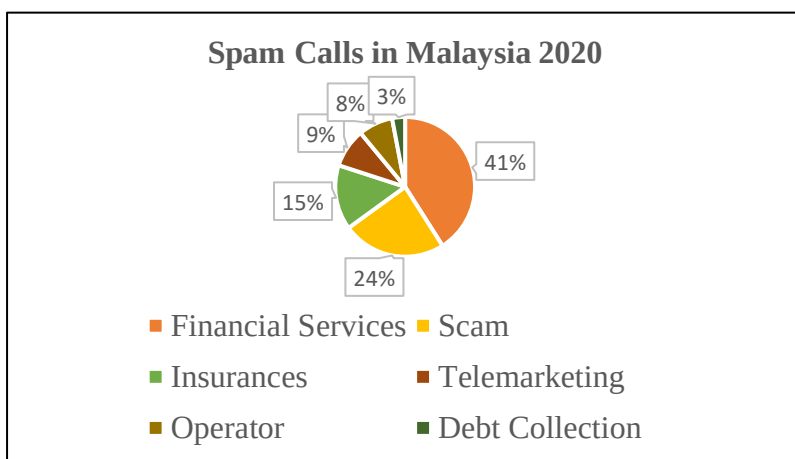
Abstract: *With the growing usage of mobile devices and the advancement of technology, m-commerce has become an essential part of the business landscape. Mobile commerce, or m-commerce, has revolutionized the way businesses interact with customers and conduct transactions. More than 32 million Malaysians used the internet in 2022 and 70% of Malaysians favourite online activity is mobile shopping. One of Malaysia's key worries is cyber security, which is understandable given the dramatic rise in issues of online crimes. In the meantime, Malaysia saw a roughly 63 percent rise in e-commerce frauds between 2020 and 2021, with close to 4,000 occurrences by May 2022. The online scammer happened due to the lack of consumer protection clout by the industry including the information of consumers and risk interact the usage behaviour of consumer in technology. In cater these issues, this study highlights the extension of perceived risk using Unified Theory of Acceptance and Use of Technology (UTAUT 2) as impacts on the use behaviour of mobile shoppers. Therefore, this study model broadened the existing of UTAUT 2 by adding the risk factor.*

Keywords: *UTAUT 2, Perceived Risk, Online Purchase Intention, Mobile Shopping Use Behaviour*

Introduction

Mobile commerce, or m-commerce, has revolutionized the way businesses interact with customers and conduct transactions. Mobile commerce accounted for nearly two-thirds (65.7 percent) of all global e-commerce retail sales (Statista, 2023). From ordering products and services to making payments, m-commerce offers convenience, speed, and flexibility to both businesses and consumers. Malaysia has a relatively sizeable m-commerce penetration rate, where at least 88.3% have used a shopping app on a mobile phone or tablet and at least 68.4% have purchased a product online via a mobile phone (Timeline: Shoptline Malaysia, 2021). One of the biggest problems for businesses engaged in m-commerce is the uptake of m-commerce activities among smartphone users in Malaysia (Ghazali et al., 2018). Although eCommerce in Malaysia is relatively strong, enforcing existing regulations needs improvement.

Despite the growing population of online shoppers, online shopping also one of the risky activities in the e-commerce market (Almousa,2011). Furthermore, Malaysia Computer Emergency Response Team (MyCERT) (2018) reported 10,699 cases due to the cybercrime which the cases increased by 34% from the previous year (The Star, 2019). Yusof (2019) reported that Malaysia is in Top 20 nations that most affected by scammer based on truecaller application and Malaysia ranked as 19th after Brazil, Indonesia, and India. In 2020, Truecaller insight revealed that the number of spams calls in Malaysia increased by 2.7% compared from previous year and the most spams calls related to financial services (Pie Chart 1). Hence, this shows that Malaysia is one of high-risk and need to take serious on the issues regarding cybercrime.



Pie Chart 1: Spam Calls in Malaysia Truecaller Insight 2020

The younger generation now faces more cybersecurity threats as a result of internet addiction, a lack of knowledge about digital citizenship, and poor parental control (New Straits Times, 2022). Furthermore, Othman, et al. (2021) stated that the youngsters between the ages of 13 and 15 are the majority of victims who are vulnerable to becoming targets to scams, cyberbullying, online harassment, identity fraud, and phishing based on the statistics. Students in particular are more susceptible to cybercrimes because of their increased technological engagement and growing financial and social independence (Bidgoli & Grossklags, 2016). Hence, the young generation are target victim of cybercrime and need to be aware in using technology.

Literature Review

Unified Theory of Acceptance and Use of Technology (UTAUT 2)

Since the UTAUT addresses organization acceptance technology, it was extended to UTAUT 2 that include the context of consumer. This theory investigates how consumers use various consumer technologies. The new UTAUT 2 model has an improved ability to explain the consumer's intention to use a technology. It can also explain the behavioral factors that affect the technology's acceptance. The UTAUT 2 is more detailed rather than UTAUT in explaining the use behavior in the context of consumer in technology. According to Chang (2012), the UTAUT 2 with some extension produce a substantial improvement in behavioral intention which is 56 to 74 percent and technology use which is 40 to 52 percent compared to the pervious UTAUT model.

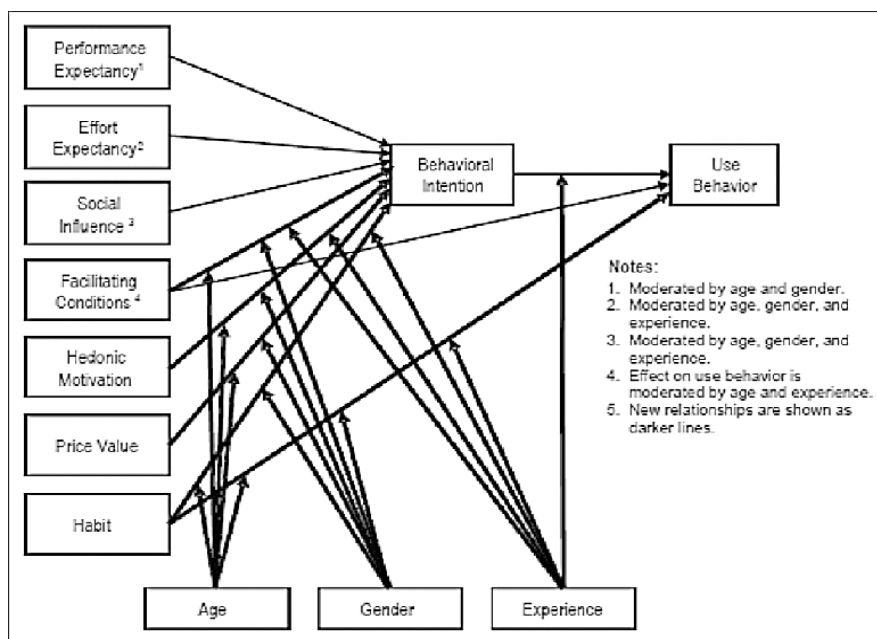


Figure 1: UTAUT 2 Model

Definition of Use Behaviour of Mobile Shopping Application

Using well-established theoretical frameworks, usage intentions and actual user behaviour have been studied in a variety of business contexts. The latest are developing to address or improve the inadequacies inherent in the existing ones while existing ones have been and are still being utilised, validated, updated, or criticised (Izuagbe et al., 2019). TAM (Davis, 1989) and its variations TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008), and UTAUT (Venkatesh et al., 2003) are prominent among the theories/models for gaining scientific insight into acceptance of people's propensity.

Definition of Performance Expectancy (PE)

The degree to which an individual believes that adopting a system will assist them in achieving their objectives is referred to as performance expectancy (Venkatesh et al, 2003). There are five constructs that are commonly used to evaluate performance expectancy are perceived as useful (TAM/TAM2), extrinsic motivation (MM2), job-fit (MPC), relative advantage (ITA), and outcome expectations (Venkatesh et al, 2003).

H1: Performance expectancy positively effect use mobile shopping apps.

Definition of Effort Expectancy (EE)

Effort expectancy is a concept that relates to the degree of ease with which a system is used (Venkatesh et al, 2003). The concept of effort expectancy is presented in three constructs: perceived ease of use, complexity, and ease of use (Venkatesh et al, 2003). According to Gharaibeh et al. (2018), effort expectancy is simply the ease with which customers use

technology. Perceived ease of use (TAM) and complexity (PCUM and IDT) are comparable terms in different models and theories from semantic perspectives (Ghalandari, 2012).

H2: Effort expectancy positively effect use mobile shopping apps.

Definition of Social Influence (SI)

Social influence is a dimension that influences an individual's behavior. It is a subjective concept that shows how important others believe that one should use a new system (Venkatesh et al, 2003). Similarly, social influence in the UTAUT refers to the degree to which a person's use of technology is influenced by the opinions of others (Venkatesh et al., 2003). A person's view of what the majority of relevant individuals to them believe about whether or not to do the behaviour in question is referred to as the subjective norm in TRA (Fishbein & Ajzen, 1975).

H3: Social influence positively effect use mobile shopping apps.

Definition of Hedonic Motivation (HM)

According to Holbrook and Hirschman (1982), the consumer behavior research defines hedonic motivation as a significant predictor of intention of consumer to purchase the products or services. In the realm of technology, Venkatesh et al., (2012) described hedonic motivation as amusement or intention brought on by the usage of this technology. Strong evidence for the importance of hedonic motivation in formalizing consumers' choices to adopt mobile technology may be found in previous studies.

H4: Hedonic motivation positively effect use mobile shopping apps.

Definition of Habit (H)

Habit (HA) has been defined as the extent to which people tend to perform actions automatically because of learning (Limayem et al., 2007). In that context Habit or Habitual use reflects the multiple results of past experiences (Venkatesh et al., 2012) and the regularity of past behavior is considered to be one of the principal determinants of present behavior (Ajzen, 2002).

H5: Habit positively effect use mobile shopping apps.

Definition of Price Value (PV)

In the context of UTAUT 2, Price value (PV) is defined as “consumers’ cognitive trade-offs between the perceived benefits and cost of using various applications” (Venkatesh et al., 2012). End users continuously weigh the costs associated with using new technology against any potential benefits that they might realize (Baabdullah, 2018; Alalwan, 2020; Shaw and Sergueeva, 2019).

H6: Price value positively effect use mobile shopping apps.

Definition of Facilitating Condition (FC)

Venkatesh et al. (2003) define facilitating conditions as the presence of the users' required technical resources to facilitate the deployment of a certain technology. Based on the UTAUT, facilitating conditions are a construct that reflects an individual's sense of control over their behavior (Venkatesh et al., 2008).

H7: Facilitating conditions positively effect use mobile shopping apps.

Definition of Perceived Risk (PR)

Cox and Rich (1964) defined the perceived risk as nature and the amount of risk recognized by the consumer in deciding to purchase. Field (1986) stated perceived risk as a psychological sensation of risk experienced by the consumer when making a decision. According to Peter and Jerry (2010) and Soloman (2015), Perceived risk can be referring as an expected, undesirable and negative impacts of an act that make consumer avoid and insecure when purchasing the products and services. There are various types of risks such as health risk, quality risk, time risk, delivery risk, social risk, private risk, financial risk, and after-sale risk (Zhang et al., 2012; Pi and Sangruang, 2011).

H8: Perceived Risk positively effect use mobile shopping apps.

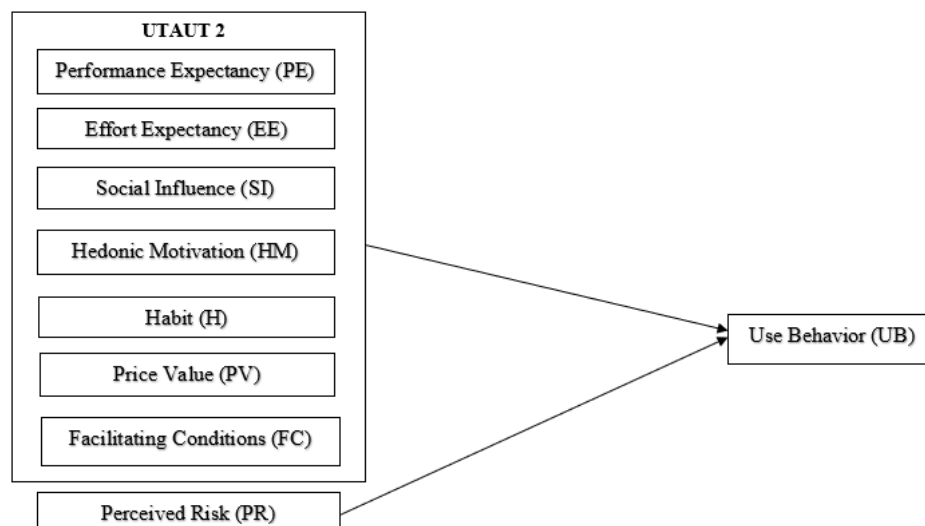


Figure 2: Proposed Framework

Research Methodology

The study model was adapted from Venkatesh et al., (2012) and the type of method adopted in this study is quantitative method as well as the questionnaires being carried out in catering the large of respondents from wide population to collect the data. This study attempts to determine

the impact of PE, EE, SI, HM, H, PV, FC, and PR toward use behaviour of mobile shopping application. The data collection process through online survey to collect data via social media. The quantitative research questionnaire will be made by using seven-point Likert type scale, starting with strongly disagree (1) to strongly agree (5). The data for this study will be collect from young generation in Malaysia at mobile shopping application and social media.

Conclusion

The model proposed in this research and the different hypotheses developed are built on the UTAUT 2 framework along with the previous studies conducted on performance expectancy, effort expectancy, social influence, hedonic motivation, price value, habit, facilitating condition, and some additional variables such as perceived risk.

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THE IMPACT OF DEMOGRAPHIC FACTORS ON HOUSEHOLDS' SAVINGS IN MALAYSIA: A CROSS-SECTIONAL STUDY

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Abstract: *This paper examines the impact of demographic factors on savings using World Values Survey 7 (2017-2022) data on a sample household size of 1313 individuals. Descriptive analysis and ordered logit regression (ologit) was applied to analyze the data. Output from ologit analysis stated that; age, middle education level, private industry are having negative relationship with Savings, while income and employment status factors are having positive relationship between Savings. This study is consistence with the life cycle hypothesis theory which stated that; with increasing age, the saving level tend to reduce. Other than that, the results on income and savings relationship also provide confirmation to the permanent income hypothesis. The overall conclusion that can be established based on the results obtained is in the future, the government should give focus on the household with significant demographic results as documented in this study, in the mission to increase household saving. Through guided action, the targeted objectives have higher inclination to be successfully achieved.*

Keywords: *Household's Savings, Demographic Factors, Logistic Regression, Economic Growth, Malaysia*

Introduction

A crucial saving is financial protection in emergencies such as sudden loss of income or unexpected expenses. This study is timely as the pandemic COVID-19 has brought many of us the importance of saving. Saving is an essential ingredient for economic growth and development. Saving only affects investment and leads to higher output, employment, and sustainable economic growth (Ribaj & Mexhuani, 2021; Larissa et al., 2020). Therefore, saving is one of the essential and critical elements for the sustainable economic development of a country (Baidoo et al., 2018).

The household in both developed and developing countries believe that saving and investment are forms of financial security and people should be serious when considering these two activities (Amu & Amu, 2012). In the case of Malaysia, this statement is not practically true. Figure 1.0 shows the trend of Gross Saving as a percentage from Gross Domestic Product (GDP) in Malaysia from 1974 to 2020. According to World Bank (2022), the Gross Savings

(% GDP) trend keep decreasing from the year 2008 until to date. This due to global financial economic crisis that hit Malaysia on 2008. Not only that global financial crisis, the Covid-19 pandemic also one of the sources contributed to lower saving rate among Malaysian (Arulthevan, 2022).

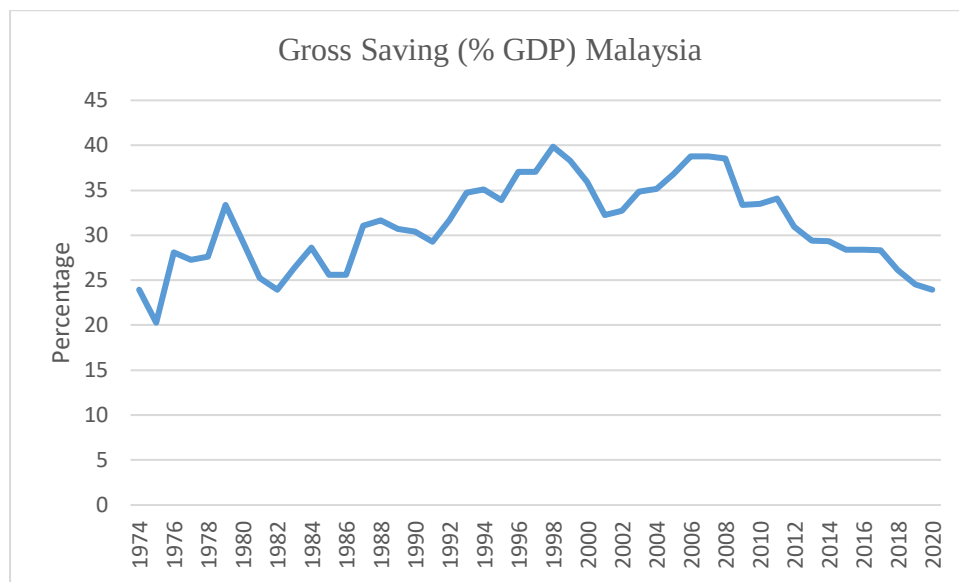


Figure 1: Gross Saving (% of GDP)

Source: (World Bank, 2022)

In Malaysia, unexpected economic events in recent years that have affected the economic landscape in Malaysia either downwards or upwards, leaving the citizens in Malaysia to face consequences. Therefore, their financial management varies regarding their savings behavior. The Astro Awani reported the number of Malaysians who said they are unable to save money every month has increased by two percentage points this year to 21 per cent compared to 19 per cent last year, according to the RinggitPlus Malaysian Financial Literacy Survey (Ringgit Plus, 2021) survey. Focusing on the same subject matter the New Straits Times reported that, draining retirement savings from the Employees Provident Fund (EPF) Account 1, serves to underscore how financially ill-prepared some Malaysians are for rainy days. This situation has been happening even before the Covid-19 pandemic began. Such a move during the pandemic would only compound the adverse effects on Malaysians as they had enough savings barely in Account 1 to tide them through retirement said the Federation of Malaysian Consumers Associations (FOMCA, 2021). In addition, as of 1st April 2022 there are 4 types of EPF withdrawal starts with i-Lestari, i-Sinar, i-Citra, and one-off RM 10,000 withdrawal for the purpose of helping the public to cope with financial difficulties during covid-19 pandemic. According to Employees Provident Fund (EPF) in a statement, the exceptional withdrawals from 1st and 2nd account contributed to 6.1 million people having less than RM10,000 and 3.6 million people having saved less than RM1,000. (KWSP, 2021). Constant withdrawal from EPF could increase the risk of insufficient fund upon retirement.

Awareness among working people in Malaysia to build additional savings for old age is still low. This situation also affects the younger generation. They think that planning for retirement is a burden for them because it is long-term planning. Nevertheless, uncertainty and ignorance

about future risks (inflation, serious illness, etc.) can lead to lower level of saving among individual. Household should increase responsibility for their financial security after retirement. With declining employment opportunities, income instability and the dwindling purchasing power of Malaysian households, workers must decide not only how much to save for retirement but also how to allocate their retirement assets (Delafronz & Paim, 2011).

Although the low savings rates have become a major source of concern in recent years, not much attention has devoted to highlight the key determinants of saving in developing countries. In recent years, few studies have been done on this issue using both the time- series and cross-sectional data. While there has been much empirical work in this important research area for the other developing countries, little empirical work has been conducted in the case of Malaysia. The paper proceeds as follows. In section 2 cover reviews of literature on factors affecting individual's savings and theoretical framework. Section 3 presents the model specification, data source and methodology adopted in the study. The section 4 discusses the findings followed by conclusion in section 5.

Literature Review

The decisions of savings affected by various demographic factors include age, gender, marital status, income level, education level, and employment status, the number of children in a family and job category. Several studies have been conducted to examine the relationship between socio-demographic factors and savings. Many studies were conducted in developing and developed nations (study by Gedela, 2012, India from Southeast Asia; Attanasio and Székely, 2000, in Zimbabwe; Teshome et al, 2013, in Ethiopia).

Age

Age tends to have positive relationship with savings (Swasdpeera & Pandey, 2012; Beckmann et al., 2013) while expected to have negative relationship with savings (Sakya et al., 2021; Brounen et al, 2016) and no significant relationship with savings (Issahaku, 2011). Zuanazzi & Fochezatto (2021) in a recent study find that younger generations tend to save less due to high commitment. As they getting older, the savings increase and reduce again in older generations. This study shows that, age and birth cohort affect the saving performance of the Finnish households. The finding revealed that the Finnish households remain saving even in the old age and younger cohorts tend to save more than the older ones Mäki-Fränti, 2022). In low-income Asian countries age were found to be determinants of financial literacy (Morgan & Trinh, 2019). The current finding revealed age have a tendency to significantly impact saving behaviour (Bhat, Gomero & Khan, 2024).

Income

Incomes are most likely to have positive relationship with savings (Hong et al, 2002). Gaisina (2014) use a sample of 704 individuals and binomial probit models to identify the demographic determinants of savings in the rural area of Kazakhstan. The results show that high income and wealthy individuals are most likely to save more compared to having lower income and less wealthy. Kusairi and Zamri (2021) in their attempt to examine the saving behaviour of bottom income group by using 479 respondents in Peninsular Malaysia concluded that B40 individuals

are willing to take risk by not saving. However, in Japan, some demographic characteristics, such as income, significantly affect the level of financial literacy (Kadoya & Khan, 2019). Moreover, family incomes shows significantly impact the saving behavior (Bhat, Gomero & Khan, 2024).

Gender

Kusairi and Zamri (2021) reported insignificant relationship between gender and savings. The study reveals that females tend to save more compare to male. Similar pattern was reported by Swasdpeera & Pandey, 2012; in which gender and savings having insignificant relationship. Kodom (2013) examine the factors that influencing savings by using logit regression techniques suggested that females with higher income tend to save more compare to male. Eventually in Japan, demographic characteristics, such income, significantly affect the level of financial literacy (Kadoya & Khan, 2019). According to some scholar male financial literacy is greater than that of females, some studies have not yet established differences between the two genders in financial literacy levels (Lethepa & Matemane, 2020). There is researcher revealed in their study that women are more cautious of the saving aspects (Guliman and Uy 2019).

Marital Status

Rengarajan et al (2016) analysed the effects of demographic variables on rural household's saving behavior in Sriperumbur, Chennai in which marital status has no significant relationship between savings by rural household. Study by Mirach and Hailu (2014) reveal that marital status has a negative relationship between savings in which married couple save lesser due to higher responsibilities compare to single individuals. Tandoh and Tandoh (2015) uses 129 sample households and ordinary least squares estimation techniques stated that being employed and married tend to save less but this relationship is insignificant.

Number of Children

Yilmazer (2008) has studied the impact of children's college expenses on household savings. The result shows that number of children is negatively correlated to household saving. Baidoo, Boateng, and Amponsah (2018) test the determinants of saving and financial literacy in Ghana by using ordinal logistic regression and output shows that there is a significant negative relationship between household size and savings. Household with larger members are tend to save less compare smaller household size. The family size has significant impact on saving behaviour (Bhat, Gomero & Khan, 2024). The increase of number of children in the family reduces the saving behavior because of expenditure increases as well (Li & Wang, 2022).

Employment Status

Study by Baidoo et al. (2018) shows the positive relationship between employment status and savings. The study has been conducted in Ghana by using sample of 800 respondents from Population and Housing Census (PHC). The employment status variable has been divided into public sector employees, private sector employees, self-employed, and unemployed. The individuals employed in private sector, and self-employed are able to save more compared to public sector employees and unemployed individuals.

Education Level

Education level and savings has a positive and significant relationship (Hunt, Jeon & Lee, 2021; Swasdpeera & Pandey, 2012; Lidi et al, 2017). The marginal propensity to save increase as the education level increases. Education level increase the savings level by inducing the level of income (Beckmann et al., 2013). Study by Ky et al. (2017) with sample of 500 individuals from Burkina Faso in West Africa has utilized the logistic regression model and the output shows that education level shows positive relationship with saving. Recently, in Japan, some demographic characteristics, such as income, significantly affect the level of financial literacy (Kadoya & Khan, 2019). According to some scholar male financial literacy is higher than female and some studies not yet revealed difference between the two genders in saving behaviour (Lethepa & Matemane, 2020).

Category of Job

Job status in which shows the consumer sentiment has a positive relationship with savings level. The sector of employment will contribute to stable income throughout life and high level of savings (Ewing and Payne, 1998). Santos (2021) examines the public sector and private sector employment on household savings and labor supply by using employer-employee micro-data from Brazil (RAIS). The analysis shows that public sector employee saves less compare private sector employee and 70% gap in savings between them. According to Lethepa and Matemane (2020) hypothesized that as a results, job status of financial literacy for banking employees is limited in both developed and emerging economies.

Theoretical Framework

Life Cycle Hypothesis

This article employs the life cycle hypothesis (LCH) paradigm, developed by Modigliani and Brumberg (1954), Ando and Modigliani (1963), and Boivin et al. (2010), to investigate individuals' saving behavior. The LCH is founded on the notion that households' savings behavior and the reduction or elimination of desires are not solely determined by their present income. Instead, it considers future expected circumstances and is influenced by past experiences (Ando & Modigliani, 1963; Danziger et al., 1982; Hunt et al., 2021). Darma et al. (2020) have said that the saving level decreases as age increases, in accordance with the LCH. Furthermore, one's income fluctuates throughout their lifetime, particularly during retirement. Darma and his colleagues (2020) assert that the majority of individuals intend to cease employment between the ages of 60 and 65, and they contend that their earnings will decline upon retirement. Nevertheless, they are not interested in experiencing a substantial decrease in their consumption-based indicator of living standards. In order to sustain their level of consumption post-retirement, individuals must accumulate money throughout their working years. However, the life cycle model affirms that individuals with higher salaries in adulthood possess a greater ability to save compared to young individuals (Zuanazzi and Fochezatto, 2021).

Permanent Income Hypothesis

The Permanent Income Hypothesis (PIH), pioneered by economist Milton Friedman in 1957, posits that individuals' spending behaviors are primarily shaped by their long-term income trends rather than their immediate earnings. This theory suggests that people strive to stabilize their consumption patterns over time by adjusting spending based on their expectations of future income stability, rather than reacting significantly to short-term fluctuations. Friedman's framework incorporates the life cycle concept, implying that individuals may borrow or save depending on their income levels to maintain a consistent standard of living throughout their lifetimes. The PIH is underpinned by the principle of rational expectations, asserting that individuals make spending decisions based on their most accurate predictions of future incomes.

Empirical validation of the PIH, as highlighted by Roche (1995), carries significant policy implications, particularly in the realm of income tax policy. Tax reductions perceived as permanent by consumers are more likely to have a substantial impact on consumption behavior. Tax cuts targeted at lower-income individuals, who exhibit a higher Marginal Propensity to Consume (MPC), are argued by Palley (2008) to be more effective in stimulating economic growth compared to those aimed at higher-income groups. Furthermore, the PIH contributes to theoretical debates such as the concept of expansionary fiscal contractions. This idea suggests that reductions in government spending, leading to future reductions in income tax, can boost consumption expenditure and output as forward-thinking rational agents anticipate an increase in their permanent disposable incomes (Fuchs-Schündeln et al., 2020).

Data and Methodology

This focus of this study is to examine the impact of demographic factors on household's savings in Malaysia. The secondary data were collected from the World Values Survey 7 (WVS7) (Haerpfer, et al, 2022). World Values Survey 7 used a stratified sampling method covering all states in Malaysia with target respondents of 1313 Malaysian citizens. The dependent variable in this study is savings in which ordinal scale, therefore the data is analysed using ordinal logistic regression model (ologit) (Liu, 2015). However, the data violated the parallel lines assumption of the ordinal logistic regression model, therefore generalized ordered logit regression (gologit2) was utilized for empirical analysis (StataCorp, 2017; Williams, 2016). This gologit2 analysis method is widely used in social research, mainly in analyses related to ordinal based dependent and independent variables (Boes & Winkelmann, 2007; Long, 1997; Williams, 2006).

The specification for the gologit2 model can be expressed as follows:

$$P(Y_i > j) = g(X\beta_j) = \frac{\exp(\alpha_j + X_i\beta_j)}{1 + [\exp(\alpha_j + X_i\beta_j)]}, j = 1, 2, \dots, M - 1 \quad (1)$$

The Y_i denotes the savings level of the respondent; M signifies the number of ordinal categories for savings. The probabilities of Y for 1, 2, ..., M can be expressed in three different ways, as illustrated in equations (2), (3), and (4):

$$P(Y_i = 1) = 1 - g(X_i\beta_1) \quad (2)$$

$$P(Y_i = j) = g(X_i\beta_{j-1}) - g(X_i\beta_j) \quad j = 2, \dots, M - 1 \quad (3)$$

$$P(Y_i = M) = g(X_i\beta_{M-1}) \quad (4)$$

The study used the gologit2 model is based on its capability to produce more reliable output in compared to the multinomial logistic model (MNL). The MNL empirical analysis is basically not able to capture the ordinal dependent variable (savings) and does not impose the parallel lines assumption across the independent variables. Furthermore, the MNL model tends to generate more coefficients in empirical output compared to gologit2 (Boes & Winkelmann, 2007; Hosmer et al., 2000). Therefore, gologit2 was used to estimate the empirical model, with all the independent variables were constrained to meet the parallel lines assumption, and robust variance estimators were applied for analysis using Stata SE15 (StataCorp, 2017).

Findings

The output of this study is reported in the following order; Demographic Profile, generalized ordered logit regression (gologit2) output.

Table 1: Demographic Profile

Variables	Category	Percentage
<u>Dependent:</u>		
Savings	Save money	39.38
	Just get by	35.95
	Spent savings and borrowed money	24.68
<u>Independent Variables</u>		
Gender	Male	50.04
	Female	49.96
Marital Status	Married	63.37
	Not married	36.63
Education	Primary	52.25
	Secondary	18.66
	Tertiary	29.09
Sector of employment	Government Institution	23.31
	Private Sector	68.24
	Non-Government organization	8.45
Income Category	Low Income	32.34
	Medium Income	57.28
	High Income	10.37
Number of Children	No Children	40.43
	Having more than one child	59.57
Employment status	Unemployed	25.78
	Employed	74.22
Continuous Variable	Mean	Standard Deviation
Age	38.33	13.21

Source: (Author's own calculations)

The demographic profile is shown in Table 1. The savings variable shows that 39.38% and 35.95% declared that they were able to save money and just get by accordingly, meanwhile 24.68% of household's spend the savings and borrowed the money to continue the life. Households in the sample are equally distributed by gender, in which 50.04% being male and 49.96% being female. The mean and standard deviation of household's age was 38.33 and 13.21 years old. The income category was recoded into low, medium and high income in which 32.34%, 57.28%, and 10.37% accordingly. The majority of households were employed (74.22%), having more than one child (59.57%), and completed their education to secondary level (18.66%). Majority of household's working with private sector or industry about 23.31% and only 23.31% of household's working with government institutions.

Initially, ordinal logistic regression model (Ologit) was used to estimate this model. But, the Brant test results (Long & Freese, 2006) shows that the estimated output has violated the parallel lines assumption, as shown in Table 2. Subsequently, this study has used the gologit2 regression in which imposing parallel lines assumptions on all independent variables. The output summary are shown in Table 3.

Table 2. Brant Test Output

Variables	Chi2	p>chi2
Age	0.32	0.574
Gender	0.02	0.877
Marital Status	7.58	0.006
Secondary	7.61	0.006
Tertiary	16.47	0.000
Private Sector	5.79	0.016
Non-Government Organization	0.28	0.595
Medium Income	19.00	0.000
High Income	12.47	0.000
Number of children	14.50	0.000
Employment Status	0.30	0.582

Source: (Author's own calculations)

Table 3. Generalized Ordered Logit Estimates for All Variables, OR (SE)

Variables	Odds ratios (OR)	Robust S.E.
Age	0.9236	0.0313***
Age Squared	1.0008	0.0003***
Female	0.9617	0.1102
Married	0.8633	0.2023
Secondary	0.6767	0.2161***
Tertiary	0.9713	0.1304
Private Sector	0.7849	0.1618**
Non-Government Organization	1.0241	0.2086
Medium Income	1.6957	0.0697***
High Income	2.7445	0.0734***
Having more than one child	1.1828	0.1524

Being Employed	1.6596	0.0778***

Notes:

1. Exponentiated coefficients ***, **, and * significant at 1%, 5%, and 10%, respectively.
2. Pseudo R^2 for happiness is 0.0239.
3. VIF (the highest value) is 2.55

The aim of this study to examine the demographic factors affecting savings in Malaysia, therefore, we use the most recent survey in which 7th wave of World Value Survey (WVS) (Haerpfer et al, 2022). We used ordered logistic regression model (gologit2) for our regression. Based on Table 3, age shows a negative relationship with savings (OR=0.9236). For each unit of age increase, there is a 7.64% reduction in savings level among households. This outcome consistent with the life cycle hypothesis in which younger individuals who is within active working group are most likely to save more compared to those in older ages (Bekata, 2016). In addition, younger individuals tend to save in the younger age to make sure that the saving is enough during unforeseen circumstances in the future (Baidoo et al, 2018). This finding confirmed past studies by Amu & Amu, 2012 in Ghana; and Komla, 2012. The age squared has added into regression will allow the gologit2 model to estimate the effect of age on savings more accurately.

We also note that the secondary education level and savings having negative relationship. For the households in secondary education level tend to save less (OR=0.6767), given the effects of other predictors are held constant in the model. Specifically, attaining secondary education level reduce the probability of savings by 32.33%. This result is consistent with past studies on Zimbabwe (Chikoko et al, 2013) but contradicts to study by Hunt et al, 2021. Usually, it is expected that people higher education tends to earn more contributing to higher savings. But the negative relationship may arise due to precautionary motives for savings. Higher education tends to reduce the income volatility and by any chance to be unemployed, people tend to be employed again due to education.

We find that individuals employed in private sector tend to save less compared to public sector employees and employees in non-governmental organization. The odds ratio of 0.7849 indicates that being the private industry employees, reduced the probability of saving by 21.51% at 5% significance level. This result can be attributed to the fact that the current income level received by private industry employees makes them unable to save more for future. According to the latest household income classification in Malaysia based Department of Statistics Malaysia (2020), the B40 category household received income below RM4850 and B40 comprising the bottom 40% of Malaysian. As we can see this latest B40 income classification, it hard for many households to reach the threshold level of RM4850 combined with rising cost of living caused them save less. Besides that, the current income received by household only able to meet the basic needs. By implication, this situation not only complicate the financial well-being of the household but the chances to save for retirement also drop. This finding confirms past study by Sabri and Zakaria (2015) in Malaysia and but disagrees with Baidoo et al, 2018.

The strong and positive relationship of income level and savings confirms the permanent income hypothesis theory. As expected, our results show that medium and high income increases the probability of saving in which the odds ratios are 1.6957 and 2.7445 accordingly.

Households that earning higher income able to meet the basic needs and remaining portion of income will be saved and be more financially independent. This result agrees with Tandoh and Tandoh, 2015; and Liu and Hu, 2013. We find a strong relationship between employed household and savings level among Malaysian households. The odds ratio of 1.6596 show that being employed relative to excluded reference category of unemployed increase the chances of saving among households. The steady income received by household may help them to fulfill the social and economic needs and remaining income will be saved. This finding consistent with study conducted in Bulgaria by Denizer et al, 2002 but not consistent with Hong et al, 2002). The results also show the insignificant relationship between gender, marital status, higher education level, non-profit organization, and number of children with level of savings.

Conclusion and Recommendation

In this study, we examined the factors that influencing household saving among Malaysian with an emphasis on demographic factors. We use the secondary data to analyze the demographic profile and generalized ordered logistic regression estimation (gologit2). The conclusion arise from our findings are as follows: (1) as household age increase by one year, the likelihood of savings has reduced; (2) the household in middle education level saved lower portion of income, (3) being the private industry employee, the household records lower savings, (4) as predicted the higher level of income able to increase the savings, and (5) being employed household has secured the higher level of savings.

This paper provides some important policy implication in which it is worth noting. The financial knowledge among middle education level should be increased in order to increase the financial knowledge and secured savings. This will improve the household understanding and knowledge of financial management. Government should implement more policies in increasing private industry workers. Despite the implementation of minimum wage RM1500, government should focus on working earning within RM4000 especially B40 category. Thus, government policies have to implement in order to improve the saving level among Malaysians.

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RESTORING PRODUCTIVITY OF BANDUNG AND PETALING JAYA SISTER CITY COLLABORATION DURING AND AFTER THE COVID- 19 PANDEMIC

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Abstract: *Sister City is a terminology that defines a cooperative relationship between two cities based on an agreement made by each city government. Both cities are not domestic cities, but it means that the cities is outside one country to another. This collaboration is quite popular in the era of globalization. Bandung, a city in Indonesia and Petaling Jaya, a city in Malaysia have implemented Sister City cooperation since 2015. Their collaboration is carried out in various fields such as economic trade, education, tourism development and business. To symbolize the collaboration between the two cities, the Sister City Monument was built in Bandung. After approximately 4 years of carrying out various collaborative programs, unexpectedly, challenges hit their collaboration when WHO declared COVID-19 virus as a pandemic, which caused the Indonesian government implemented various policies that restricted social movement, including closing cross-border entry points such as airports, harbour and cross-border posts with the aim to break the chain of spreading of the COVID-19 virus. Due to this policy, the productivity of the Sister City Bandung and Petaling Jaya collaboration has decreased. Communication that only relies on video conferencing really hinders the work programs that require face-to-face meetings. The performance of cooperation, which was not optimal during COVID-19, needs to be revived when WHO declares the end of the COVID-19 emergency situation on May 4th 2023. Thus, it is necessary to examine the efforts which Bandung and Petaling Jaya City Governments could take to restore the level of productivity of Sister cooperation between Bandung and Petaling Jaya in post COVID-19 pandemic.*

Keywords: *Sister City, Bandung, Petaling Jaya, COVID-19*

Introduction

Background

Entering the era of modern globalization, not only central government actors can collaborate with each other on an international scale, but local governments can also collaborate on an international scale. With a decentralized development system, the central government gives authority, responsibility, human resources and funds to local governments with the aim of carrying out development in the areas they manage (Nuradhawati, 2019). Indonesia is a country that adheres to a decentralized development system with a total of 416 districts and 98 cities, based on data from the Central Statistics Agency for 2023 (Oktaviani & Nailufar, 2023). A city in a country with a decentralized development system will usually tend to be independent in doing everything for the development of their city, including collaborating with foreign parties.

From international relations viewpoint, cooperation between local sub-state entities and sub-state entities in other countries is known as the practice of paradiplomacy (Ksenicz, 2023). Even though it is permitted in Indonesia to initiate paradiplomacy, the Indonesian Central

Government regulates the implementation of Paradiplomacy Practices. Such practices subjected two main regulations: (1) Law Number 37 of 1999 concerning Foreign Relations and (2) Ministry of Home Affairs Regulation Number 25 of 2020 concerning Procedures for Regional Cooperation with local governments abroad or institutions in overseas. Since Indonesia is not a Federation country, but a Unitary State, the local governments need to obtain permission from the Central government to carry out Paradiplomacy practices. The permission is given in the form of a "Full Power Letter." Without this letter, the local government is not permitted to sign cooperation agreements with local governments abroad (Mujiono, 2022).

In the practice of Paradiplomacy, one form of cooperation involving local governments with other local governments abroad which is formed on the basis of agreements, is known as the Sister City cooperation concept. Reporting from the Sister Cities International Organization website, a city has the possibility of establishing Sister City collaboration with more than one cities. In practice, it is not limited to only involve local government actors, but community members and volunteers are also involved (Sister Cities International, 2023). More precisely, there are 3 entities involved, namely the local government, business actors or Micro, Small and Medium Enterprises (MSMEs), and the wider community.

Bandung is one of the cities in Indonesia that carries out Sister City collaboration with one of the cities in Malaysia, namely Petaling Jaya. The collaboration between the two has officially started on November 27th 2015 (Evan, 2019). This collaboration was carried out in various fields such as tourism, economy, business and education. During the collaboration, both of Bandung and Petaling Jaya gained benefits which are considered as mutual benefits to each other. However, things turned around when WHO declared a COVID-19 pandemic in 2020, which led to the implementation of various policies with the aim of limiting people's social movements in order to break the chain of COVID-19 virus. The COVID-19 virus was detected for the first time in Wuhan, China at the end of 2019. The virus could be transmitted directly or indirectly through water, air, objects touched by infected individuals, and even animals, causing it to spread quickly and massively (Indonesiabaik.id, 2021).

Problem

The problem that this research address is about the efforts of Bandung and Petaling Jaya local governments should implement in restoring their collaboration Sister City performance between both in various field such as education, technology, economy, and social, during and after the hit of COVID-19 pandemic.

Research Objectives

- 1)** To asses the impact of COVID-19 pandemic on the Sister City Collaboration between Bandung dan Petaling Jaya in various fields such as education, technology, economy, and social.
- 2)** To identify the strategies of Bandung and Petaling Jaya could applied in order to restoring their Sister City Collaboration performance during and after the COVID 19 Pandemic.

Literature Review

Concept of Paradiplomacy

Since after the Cold War, internal political changes have occurred in several countries. The rigid centralized system, which is centered on the Central Government, is experiencing dynamic changes. The emergence of a decentralized system is a sign that regional or sub-national governments also have the power to manage their regional leadership. The emergence of a decentralized system is also a marker of the increasing quality of democracy (Oddone, 2023). With a decentralized system, the hopes, demands and interests of the community will be responded to more quickly (Oddone, 2023). One of the concepts associated with a decentralized system is Paradiplomacy (Torres, 2023). Several factors motivate the occurrence of Paradiplomacy such as economic cooperation, political reasons, and the presence of local organizations that are pro-international in this era of globalization (Fantoni & Avellaneda, 2022).

Concept of Sister City Collaboration

Sister City Collaboration is basically a collaboration involving sub-state entities from different countries (Safitri *et al.*, 2023). There is an international organization whose members are representatives of entities involved in Sister City collaboration, including local governments, non-governmental organizations, private companies, and even civil society communities. The organization is called Sister Cities International. Based in the United States, Sister Cities International has succeeded in uniting 300 members with 2000 partnerships from 140 different countries (Sister Cities International, 2023). The concept of Sister City cooperation was initially introduced by Dwight D. Eisen, former 34th President of the United States and founder of the Sister Cities International Organization. The aim of creating this concept is to promote world peace through mutual respect through the exchange of ideas and initiatives that not only have a positive impact on an individual, but also help a community to develop further (Sister Cities International, 2023).

When carrying out a collaboration, including the Sister City Collaboration, the parties involved must have their own interests (Francinni *et al.*, 2022). Therefore, Sister City collaboration must be built with the aim of providing mutual benefits to the parties involved, especially as Sister City collaboration is a long-term collaboration. Sister City collaboration can provide maximum results provided several issues need to be considered based on common ground analysis to determine how much potential the parties who will become partners have. For example, the issues include analyzing the similarity in population size, geographic similarity, and industrial sectors similarity.

Several factors need to be considered in determining a potential partner for sister city collaboration. Potential candidate is commonly a city that has a population, geographical conditions such as climate, weather, size of land and sea area, and industrial sector that are similar to the city involved in the Sister City collaboration (Fitri, 2016). This is because, choosing a partner with several things in common will automatically create a common background (Atika *et al.*, 2023). It is very likely that the types of challenges and opportunities faced by both parties will also be similar, which enables easier implementation of the programs and provide mutual benefits for both parties (Putra *et al.*, 2021).

Apart from materialistic fields such as economic, trade or business, Sister City collaboration can also be carried out in the educational, social and cultural sphere (Affandi *et al.*, 2020). An example in the educational sphere is the student exchange program, collaboration between educational institutions, such as schools or universities. In addition, in the social sphere cooperation between religious-based groups, cooperation between local NGOs, or even cooperation for non-formal interests such as inter-state marriages (Sister Cities International, 2021). Furthermore, the cultural collaboration may involve cultural exhibitions, cultural exchanges, and so on (Putra *et al.*, 2021).

Sister City collaboration is quite complex, because it can take many forms such as government initiated, voluntary individual, and local community participation (Damayanti, 2018). Therefore, this collaboration needs to be formed with an agreement between the two parties complete with a validity period for the collaboration, as well as forming specific committee that will be the representative of each local governments. The committee is responsible to ensure the success of the entire series of cooperation programs in various fields. The aim is for both parties to achieve their goals respectively. Even though it has a validity period, the Sister City cooperation agreement can be extended, if both parties feel that they have mutually benefited during the cooperation period (Pramudya, 2018).

History of Bandung-Petaling Jaya Sister City Collaboration

Bandung is one of the cities in West Java Province, Indonesia and is also the provincial capital. The city of Bandung has been named the third largest Metropolitan City in Indonesia after Jakarta and Surabaya with an area of around 16,729 hectares (Portal Bandung, n.d.). Meanwhile, Petaling Jaya is one of the cities in the state of Selangor, Malaysia, which is the largest city and is considered to be developing rapidly. In 2009, the cities of Bandung and Petaling Jaya both received awards as cities with good levels of infrastructure and tourism. These two cities have many similarities between them, especially as Indonesia and Malaysia were neighboring countries with similar cultural backgrounds, religions, languages, and distances that were easy to travel (Maksum, 2022). The relationship between the two became closer in 2011 when the Petaling Jaya City Government visited Bandung City to see the potential of Bandung City as a cooperation partner. The two of them discussed cooperation plans based on utilizing their respective potentials. However, in 2012, the cooperative dialogue between the two was stopped due to the change of Mayor of Petaling Jaya as well as several changes to regulations and procedures. Bandung and Petaling Jaya still insisted on being cooperation partners, until a Letter of Intent was formed which was binding on both parties. This was encouraged because Bandung and Petaling Jaya often meet at art exhibitions (Evan, 2019).

The cooperative relationship between Bandung and Petaling Jaya is progressed to the point where a Memorandum of Understanding (MoU) was signed on November 27, 2015 with a validity period of 5 years (Bandung City Public Relations, 2023). This MoU then became the foundation for Bandung and Petaling Jaya in building Sister City cooperation. As a symbolic form of cooperation between Sister City Bandung and Petaling Jaya, a Sister City Monument was built on Jalan Aceh-Wastukencana which was inaugurated on October 9, 2016 and signed by the Mayor of Bandung, M. Ridwan Kamil and the Mayor of Petaling Jaya, Mohamad Azizi

bin Mohamad Zain. The Sister City Monument is also in Petaling Jaya, which was built one year earlier (Miftah, 2016).

Bandung and Petaling Jaya are building Sister City cooperation in various fields consisting of: (1) Economy and Trade, (2) Tourism, (3) Education, and (4) Other fields that will be agreed upon in the future. The Bandung government aims to improve the regional economic level through potential development in order to alleviate poverty and advance trade schemes. MSMEs in the fields of fashion, culinary, handicrafts, are potential economic sectors for Bandung to develop. However, several challenges such as low technology, lack of capital, lack of information and markets, and low quality of resources encourage Bandung to work together with Petaling Jaya to meet the challenges (Anggia *et al.*, 2020). One of the outlooks for this collaboration is the establishment of several "Little Bandung" stores in Petaling Jaya in 2016 (Ika, 2016). Meanwhile, the Government of Petaling Jaya, inspired by the Smart City concept implemented by the City of Bandung, is encouraging cooperation with the Government of Bandung and the outlook for this collaboration is the construction of the PJ Smart Center in 2018 and making Petaling Jaya the leading smart city in Malaysia (Public Relations of the City of Bandung, 2023).

Impacts of COVID-19 in Sister City Collaboration between Bandung and Petaling Jaya

When COVID-19 hit in late 2019, many regulations were implemented that restricted social movement, including import-export activities (Tang *et al.*, 2022). Some experts even highlighted the increase in export fees and taxes during the COVID-19 pandemic (Tang *et al.*, 2022). Apart from that, during the peak period of the pandemic, precisely on April 24 until June 1, the Indonesian Government also stopped commercial and charter air transportation services, except for air transportation carrying amenities for handling COVID-19. Similar exception was also given to state representatives, state guests and international organizations. with the aim of traveling to handle COVID-19 (BBC News Indonesia, 2020). Even workers in private companies and government agencies were also encouraged to implement the Work From Home (WFH) (Deole, 2023) system by utilizing long-distance communication technology such as video conferencing, online meetings and so on.

Reporting from the official Bandung City website, the Bandung Government admitted that since COVID-19 hit, cooperation between Bandung and Petaling Jaya has become passive (Kim Cipedes, 2022). Some of these restrictive policies during COVID-19 had an impact on the performance of the Sister City Bandung and Petaling Jaya collaboration. The collaboration became hampered in its performance in the final year of the collaboration, precisely at the end of 2019 to 2020. Collaboration in various fields that require physical contact, such as implementing Youth Leadership Camp (YLC) in 2019 where there were 12 students from Bandung who took part in YLC in Petaling Jaya. Other collaboration were also affected such as the collaboration in the field of technology, where the Petaling Jaya City government sent 4 selected staff to be placed in the Bandung City Hall office with the aim of studying the implementation of Smart City Bandung City (Yayan, 2022).

The remaining validity period of one year for the collaboration between Bandung and Petaling Jaya, and the situation which causes restrictions on social movement, are considered to be the two main factors causing the decline in the performance of the collaboration between the Bandung and Petaling Jaya governments. The focus of employees in each government has been

diverted to more urgent matters in the internal sphere, namely preventing the spread of COVID-19 and the safety of its citizens, thereby indirectly allowing cooperation that is still in force to continue passively and even seem neglected.

Methodology

This study entitled “Restoring Productivity of Bandung and Petaling Jaya Sister City Collaboration During and After the COVID-19 Pandemic” uses qualitative research approach and content analysis as the primary data collection method. Qualitative research is a methods which allows the researcher to do in-depth research. Instead of answers “how many” or “how much,” qualitative research answers the hows and whys (Tenny *et al.*, 2022). Content analysis is a data collection process which needs to do a review on the textual online content from official governments website, reputable news, and press releases (Tunison, 2023). Meanwhile, for the academic journal and thesis resource, this research focusing on international relations, sister city collaboration, paradiplomacy, and impacts on city-to-city cooperation. The search of journals and thesis will be conducted using academic databases such as Google Scholar and Universities databases relevant to the topic. The content gathered would be reviewed and analyzed to extracting insights on the specific impacts that occurred in Sister City Collaboration between Bandung and Petaling Jaya during and after COVID-19 and the strategies to restoring their collaboration performance.

Findings

The Performance of Sister City Collaboration between Bandung and Petaling Jaya had become passive since the COVID 19 pandemic hit in early 2020. However, there are experts who state that COVID-19 has actually brought sister cities closer together. This statement came from Robert D. Eldridge, a professor at Osaka University, when he was present as an observer at the Fourth U.S.-Japan Subnational Global Young Professionals Forum which was held virtually by Koyamada International Foundation (KIF) Japan, KIF America and Junior Chamber International (JCI) Japan in January 2021. According to Robert, holding a forum during the COVID-19 pandemic is indeed challenging, but presenting the forum virtually is a brilliant concept. This is an opportunity where more participants will attend via the video meeting platform because it is easy to access the space to join without having to travel far. The forum is also a means of introducing new ways for sister cities to interact during the pandemic (Eldridge, 2021).

Apart from being a barrier, the COVID-19 pandemic can actually be a driving force for creating new innovations. In fact, cities actually play an important role in dealing with the impact of the COVID-19 pandemic through the City Networking, Smart City and Global Partnership programs (Hartatiet *al.*, 2021). If we compare the President as the leader of the Central Government and the Mayor as the leader of the Regional Government, then the public will have a higher level of trust in the Mayor, because the Mayor is generally a native who understands the regional situation and has a positive reputation and is a problem solver without having fanaticism towards ideology. certain. Meanwhile, the President is a leader who is important for having certain ideological guidelines in making decisions (Berber, 2013).

Through City Networking, cities can work together during the COVID 19 pandemic to jointly deal with COVID-19, through collaboration between qualified doctors and nurses. Not only that, for example, the Beijing and New York City Governments are becoming more united during the pandemic by sending 1000 medical ventilators by the Beijing City government to New York (Newburger, 2020), in addition to the Central Governments of China and the United States who are actually blaming each other regarding the origin. the origin of the emergence of the COVID-19 virus (Hartatiet *al.*, 2021).

Apart from that, the Smart City concept can be used to prevent the spread of COVID-19. The City Government is the agency that tends to have more complete data on local residents. Therefore, the use of technology can be utilized to obtain citizen reports regarding the spread of COVID-19 in the area in real-time, so that the City Government can decide on policies based on the data obtained according to the situation in the field. The use of this technology has been implemented during the COVID-19 pandemic by several city governments in China who adopted the Smart City concept (Hartati et al., 2021).

The tourism and economic fields seem to be fields that will be very difficult to revive during the peak of the pandemic. However, when the pandemic numbers begin to decline, an initiative can be implemented to revive tourism and the creative economy. This initiative is called the travel bubble scheme which was implemented in collaboration with Singapore, Bintan and Batam. The travel bubble scheme is a scheme agreed upon by two or more countries to open tourism gates to each other with several conditions that visitors need to fulfill, such as (1) having been vaccinated twice as proven by a certificate, (2) showing a negative polymerase chain reaction (PCR) test result.), (3) using applications that can detect individuals free from COVID-19, such as PeduliLindungi or BluePass (Aqesya & Noviyanti, 2022). With the opening of tourism, the local community's economy will relatively increase because selling power will be higher with the arrival of tourists, especially MSMEs and creative economies created by local residents.

From the explanation of the innovations above, Bandung and Petaling Jaya are considered to have the potential to maintain the productivity level of the Sister City Collaboration between them during the COVID-19 period, to be exact in 2020, where the collaboration period between the two has not yet expired. Considering that one form of collaboration between the two is the implementation of Smart City, Bandung and Petaling Jaya might be inspired by several cities in China which utilizing technology to monitor the spread of COVID-19 in city areas through real-time citizen reports. Apart from that, Bandung and Petaling Jaya can expand their collaboration to the health sector, such as collaboration between doctors and nurses. That way, when Bandung and Petaling Jaya continue their collaboration, there will be many innovations and new forms of cooperation that will be able to solve new problems.

Conclusion

Bandung and Petaling Jaya Sister City Collaboration is a big potential for both of them to develop each region in various fields. However, in a hardship such as pandemic, their collaboration is actually much more needed instead of being passively productive. They should work of their potential together to solving the current problem that both of them faced. From

all the initiative that had been work earlier by some of other countries, Bandung and Petaling Jaya should be being inspired and applied the innovation by working on their potential.

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THE CHALLENGES OF MULTILINGUAL STUDENTS IN SOCIAL- EMOTIONAL LEARNING

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Abstract: *This ethnographic study investigates the challenges faced by multilingual students in social and emotional learning (SEL), a process crucial for achieving success in school, the workplace, and life. SEL involves developing social and self-awareness, self-regulation, and communication skills. The research provides insights into the multifaceted experiences of students within learning environments, employing ethnographic methods such as participant observation, interviews with selected teachers and students, and document analysis. These techniques reveal the intricate interplay among language, culture, and social-emotional development in multilingual learners. The findings indicate significant difficulties for both educators and students within the SEL framework. Multilingual learners often face prejudice and stereotypes linked to their linguistic backgrounds, leading to language discrimination. This discrimination poses barriers to the development of social-emotional competencies by hindering effective communication and emotional expression. Moreover, as these students navigate varying cultural norms and practices in the classroom, the importance of cultural awareness emerges as a crucial aspect of their learning journey. Language and culture are deeply intertwined with their social identity, affecting their sense of self-worth and belonging. Another major challenge is communication empathy, the ability to understand and share the feelings of others across linguistic and cultural divides, which multilingual learners often find difficult. The study underscores the importance of addressing the complex challenges faced by multilingual learners in SEL. Teachers play a vital role in fostering linguistic equality, promoting cultural understanding, and enhancing communication and empathy among all students. By acknowledging and tackling these issues, educators can create more inclusive and supportive learning environments, paving the way for equitable and effective education for multilingual students*

Keywords: *Multilingual students, social-emotional learning, Sociolinguistic*

Introduction

Students come from a wide range of cultural and linguistic origins and fill classrooms in today's increasingly diversified educational environment. As is observed in Mambaus Sholihin Islamic boarding school, every student learns in a single classroom to enhance their educational

experience despite having a diverse background, culture, and place of origin. They must introduce the teaching of Arabic and English as foreign languages in the classroom. They are required to implement the use of Arabic and English as foreign languages in education. The combination of education remains at the core of their goal to build multilingual skills, namely Arabic and English without forgetting the mother tongue, Indonesia. They may become distracted and find it difficult to meet all of the demands of the school environment if they utilize multilingualism in addition to adjusting to different backgrounds. To develop students who are prepared and accountable for their achievement in life, educational institutions also seek to provide a socially, emotionally, and linguistically integrated education. Although having multilingual children in the classroom has many advantages, it also brings special difficulties, especially when it comes to social-emotional learning (SEL).

The term "social and emotional learning" (SEL) refers to the process of acquiring social and emotional competences, which are reliant on an individual's emotional intelligence—the ability to identify, comprehend, and regulate emotions.⁶⁵ All people of all ages learn and practice the knowledge, abilities, and attitudes necessary to create healthy identities, control emotions and accomplish individual and group objectives, feel and demonstrate empathy for others, build and sustain supportive connections, and make thoughtful decisions. Those criteria fulfil the aspects of socio-emotional learning (SEL) including emotional knowledge, emotional and social action, social problem-solving, and self-regulation.⁶⁶ These abilities are essential for personal growth, academic achievement, and lifetime learning. To assist the holistic development of every student, educators must, however, navigate the complications introduced by the junction of multilingualism and social-emotional learning.

Multilingual students have complex and varied obstacles in their social-emotional learning, which include linguistic, cultural, and socio-emotional aspects. Multilingual learners have a variety of challenges that might affect their overall academic success and social-emotional development, from overcoming limitations in language to navigating cultural differences. Affective socialization into a new discursive community brought about by multilingualism may have varying effects on emotions in various people and linguistic contexts.⁶⁷ Teachers also have to struggle with how to deal with these issues while encouraging a welcoming and learning environment for every student. To help students understand and express their emotions in a healthy way, which fosters empathy and acceptance for others, teachers are essential in promoting social-emotional learning (SEL) in inclusive classrooms.⁶⁸

This paper examines the complexities of multilingual students' experiences in educational environments and the difficulties they encounter in social-emotional learning. Utilizing extant literature and conceptual models, this paper investigates the elements that give rise to these difficulties and deliberates on the practical consequences. By highlighting multilingual

⁶⁵ Lori Nathanson et al., "Creating Emotionally Intelligent Schools With RULER," *Emotion Review* 8, no. 4 (2016): 305–310.

⁶⁶ Susanne A Denham et al., "Social-Emotional Learning Profiles of Preschoolers' Early School Success: A Person-Centered Approach," *Learning and individual differences* 22, no. 2 (2012): 178–189.

⁶⁷ A. Pavlenko, *Emotions and Multilingualism: An Integrated Perspective* (Cambridge: Cambridge University Press, 2006), 227–246.

⁶⁸ Mrs Pooja, "Social Emotional Learning for Promoting Inclusive Education," *Scholarly Research Journal* 5, no. 26 (2018): 7609–7615.

learners' unique needs and experiences, it is hoped that educators, policymakers, and academics will be more informed about the need to include linguistic and cultural variables in social-emotional learning programs.

Literature Review

Multilingual Students

Multilingualism is a complex concept involving individual factors, microsystems, and society, and requires interdisciplinary cooperation to improve education and multilingualism in the future. Being multilingual means students are involved in learning multiple languages, which involves social, cognitive, and microsystem components.⁶⁹ Students' multilingual development is influenced by language-based, environmental, and personal elements contributing to academic achievement.⁷⁰ For multilingual students, the classroom environment plays a critical role in supporting their language and cognitive development. Being multilingual is a benefit that should be acknowledged and used in the classroom to encourage both positive identities and academic performance.⁷¹

The two primary theories of multilingualism are affordance theory and linguistic theory. While affordance theory highlights the social and cultural aspects that play a role in learning and using several languages, linguistic theory concentrates on cognitive and linguistic processes.⁷² These linguistically and culturally diverse learners bring assets that enrich the experiences of all learners and educators.⁷³ This crucial component of teaching and learning languages, particularly for multilingual students, builds the sociolinguistic environment around them. The study of sociolinguistics focuses on the connections between language and society and the influences that social context has on language acquisition and instruction. Various social factors, including culture, ethnicity, and socioeconomic class can influence multilingual students' language choice and usage. By contextualizing language presentation, exploring the influence of social and cultural variables on language, and including lessons with a functional perspective, educators can help students become more conscious of sociolinguistic concepts.

One area of interest is the connection between social-emotional learning (SEL) and multilingual students. Studies have indicated that studying many languages can benefit students' social-emotional and cognitive growth. The benefits of balanced language ability on social-emotional and cognitive intelligence were highlighted in a Bridgewater State University study that examined the effects of multilingual learning on children's social-emotional and cognitive development.⁷⁴

⁶⁹ Gabriella Sándor, "Mehrsprachigkeit," *International Journal of Multilingualism* 7, no. 4 (2010): 379–381.

⁷⁰ Diep Nguyen and Nancy Commins, "Teaching for Equity: The CLEAR Paradigm," *Wisconsin Center for Education Research* 4, no. 1 (2020): 1–15.

⁷¹ Jim Cummins, "Intercultural Education And Academic Achievement: A Framework For School-Based Policies In Multilingual Schools," *Intercultural education* 26, no. 6 (2015): 455–468.

⁷² Ahmad Faizin HS, "Sociolinguistics in Language Teaching," *Mabasan* 9, no. 2 (2015): 66–77.

⁷³ Nguyen and Commins, "Teaching for Equity: The CLEAR Paradigm," 4.

⁷⁴ Jasmine Won, "The Effects of Multilingual Learning on Social-Emotional and Cognitive Development in Children" (Massachusetts: Bridgewater State University, 2022).

Social-emotional Learning

Learning about social and emotional development (SEL) is essential to both schooling and human growth. All youth and adults can develop healthy identities, manage emotions and accomplish individual and group objectives, feel and demonstrate empathy for others, build and sustain supportive relationships, and make responsible and compassionate decisions through the SEL process. SEL promotes educational fairness and establishing learning through genuine school-family-community connections to achieve greatness in settings and encounters, focusing on meaningful and demanding curriculum and instruction, continuous assessment, and relationships based on trust and collaboration.⁷⁵ Students who receive social-emotional learning are more likely to have a favourable attitude toward them and others, think less negatively, and acquire self-awareness, self-management, relational skills, social awareness, and responsible decision-making.⁷⁶

According to Goleman's concept, ecological intelligence—which shows linkages between human behaviour's and their repercussions on the earth, human health, and social systems—is created by combining naturalist intelligence and emotional intelligence.⁷⁷ Goleman developed a social intelligence theory based on five indicators: acts and sentiments have a two-dimensional relationship, and the indicators are positive thinking, affection, sincerity, helping, and appreciation.⁷⁸ As stated by Goleman, “Social harmony is a requirement for reaching a high collective intellectual quotient”. When everyone is aware of their environment, social harmony can be attained. To be able to engage and contribute to society is a responsibility that each person has to himself.

To help teachers implement Multiple Intelligences Theory in their classrooms and support more successful learning outcomes for their students, Gardner's evolving views of intrapersonal intelligence—which he names as the most significant construct for learners in the twenty-first century—as well as the degree of accuracy with which his definitions are translated into popular texts are examined. As Gardner's theories of interpersonal and intrapersonal intelligence have developed, theories of emotional intelligence have also emerged.⁷⁹ For multilingual students, intercultural collaboration can increase interpersonal intelligence to be aware of themselves and intrapersonal to recognize social existence. Interpersonal and intrapersonal intelligence can help students with higher communication skills and emotional intelligence.

⁷⁵ Aaliyah A Samuel, *Social and Emotional Learning in Action: Creating Systemic Change in Schools* (New York: Guilford Publications, 2023).

⁷⁶ Razia Rizve et al., “Application of Behavioural Emotional Rating Scale (BERS 2nd Ed.) to Study Social and Emotional Behaviour of Students at Middle Level in District Mirpur Azad Jammu Kashmir,” *International Journal for Innovation Education and Research* 7, no. 11 (2019): 599–607.

⁷⁷ Thomas Joseph Doherty, “Ecological Intelligence: How Knowing the Hidden Impacts of What We Buy Can Change Everything by Daniel Goleman,” *Ecopsychology* 1, no. 2 (2009): 100–103.

⁷⁸ Faisal Faliyandra, “Konsep Kecerdasan Sosial Goleman Dalam Perspektif Islam (Sebuah Kajian Analisis Psikologi Islam),” *Jurnal Inteligencia* 7, no. 2 (2019): 1–24.

⁷⁹ Maura Sellars, “Intelligence for the 21st Century: A Discussion of Intrapersonal and Emotional Intelligences,” *International Journal of Learning* 15, no. 2 (2008): 79–88.

Sociolinguistic Theory

Sociolinguistics is the study of language and society. It looks at how different languages coexist in a social setting and how it affects how people communicate and make decisions.⁸⁰ It needs to modify its focus from language, community, and identity studies to process and practice to examine the crucial role that linguistic diversity plays in the formation of new social structures in situations of globalization.⁸¹

According to sociolinguistic theory, there are many different facets and complex interactions between language and social identity. Social identity and language are intimately related because language has the power to both reflect and influence social identities. Language use and the development of social identity can be influenced by social characteristics such as gender, age, area, occupation, class, and ethnicity. One may argue that language is a vehicle for culture and a means of expressing one's social group membership. Individuals can modify their language usage to convey various facets of their identities and demonstrate their membership in particular social circles. Different language features might suggest membership in various social groups, and these group-specific features are employed to present a certain identity to the outside world. Language both shapes and constructs social identity and reflects it, thus there is an exchange in this interaction.⁸²

Research Method

This study uses a qualitative ethnographic method to investigate the difficulties multilingual students encounter while attempting to gain social-emotional learning (SEL). In educational settings, ethnography enables a thorough examination of the lived experiences, cultural backgrounds, and social dynamics of multilingual students. The researcher hopes to obtain deep insights into the complex experiences of multilingual students and the sociocultural elements that influence their social-emotional development by fully immersing in the naturalistic setting of the classroom.

A variety of techniques, such as observations, interviews, and document analysis, were used to gather data for this study. These alternative methods enable triangulation and validation of results by offering a thorough grasp of the difficulties and experiences faced by multilingual students in SEL.

Data Collection

⁸⁰ Acheoah John Emike et al., "Introducing Sociolinguistics," *Bulletin of Advanced English Studies (BAES)* 6, no. 2 (2021): 36–44. <https://doi.org/10.31559/baes2021.6.2.2>.

⁸¹ Monica Heller, "Language And The Nation State: Challenges To Sociolinguistic Theory And Practice," *Journal of sociolinguistics* 12, no. 4 (2008): 504–524. <https://doi.org/10.1111/J.1467-9841.2008.00373.X>.

⁸² Somaya Alshehri, "The Relationship between Language and Identity," *International Journal of Linguistics, Literature and Translation* 6, no. 7 (2023): 156–161.

A detailed observation of the learning environment provided the data for this investigation. The researcher collaborated with an Arabic and English language development teacher at Mambaus Sholihin boarding school to have a general overview of the Mambaus Sholihin boarding school's multilingual education and SEL programs.

Data from 25 students of Mambaus Sholihin boarding school with diverse backgrounds, ethnicities, and locations across Indonesia were also obtained through interviews. Judging from the first time they studied at an Islamic boarding school that applied multilingualism, they had studied multilingualism for an average of three to nine years. They talked about how they felt when they spoke and how hard it was for them to fit in throughout the interviews. In addition, information was gathered from seven teachers with one to four years of classroom experience through semi-structured interviews. They work as language development instructors at the Islamic boarding school Mambaus Sholihin. The seven teachers all concurred that multilingual education has a significant impact on SEL; yet, this is a complicated issue that makes it difficult for students to use several languages as tools for communication to adapt to their surroundings.

Observation

Multilingual students' everyday interactions, behaviors, and social dynamics in the classroom are monitored through participant observation. Continuous observations are made to record patterns, themes, and subtleties that may show up during classroom activities and interactions and to represent the naturalistic environment of social-emotional learning. Therefore, this observation was carried out for three years, beginning after the COVID-19 pandemic until 2023. This observation aims to determine how social-emotional learning and multilingualism are implemented at the Mambaus Sholihin Islamic boarding school.

Considering the Mambaus Sholihin Islamic Boarding School as an Islamic religious educational establishment founded on multilingualism and social-emotional learning, it can be observed that each student is supposed to use Arabic and English as the language of instruction for everyday learning and communication without forgetting regional languages and Indonesian as ingrained languages.

As observers, a few issues with multilingualism's effective use concern us. Applying multilingualism to social-emotional learning is a complicated process. The boarding school students need to be able to settle into speaking Arabic and English regularly and utilize Indonesian as a tool to assist them convey ideas that are hard to put into words. Nevertheless, because students are disconnected from their surroundings, employment in the field of multilingualism has been less successful in the years following the COVID-19 pandemic or 2021. It is a result of the government's periodic isolation policies, which are meant to limit social interaction from 2019 until 2020. The limits of social interaction result in their limited ability to implement various languages outside the boarding school environment. Consequently, Islamic boarding schools offer a respite for educators and learners to adapt to multilingualism and the utilization of Arabic and English as teaching languages for learning.

Regulations about multilingualism are also being restored to encourage and support students in 2022 and 2023. As students, they start to develop a sense of self and become fluent in both

Arabic and English in daily speech. In addition, teachers help students become more confident in their ability to communicate, especially in the face of frequent blunders that make them choose to stay mute rather than use a foreign language. When something is difficult to convey, people tend to turn to Indonesian or other regional languages like Javanese, Madura, and others as a backup language or way out. In this instance, students develop a feeling of self-awareness of the value of order and take ownership of their actions.

Interview Guidelines

Semi-structured interviews are conducted with multilingual teachers and students to learn about their perspectives, experiences, and challenges related to social-emotional developments that follow student observation. 7 teachers and 25 students participated in the interview by answering questions about multilingualism and social-emotional learning. Because of their open-ended and adaptable format, interviews enable participants to tell their stories on their own terms. Topics including the influence of language learning on social-emotional learning, language use, cultural identification, social relationships, and emotional experiences in the classroom are the focus of the questions.

Even though social-emotional learning is not emphasized heavily in every lesson in the classroom, all teachers concur that multilingualism has a significant impact on social-emotional learning in the boarding school setting. Umu Khofiyah, one of the Arabic teachers, acknowledges that students need to practice speaking two languages to communicate in the boarding school setting. The purpose of Mambaus Sholihin Boarding School is to provide children with the opportunity to learn a few foreign languages, specifically Arabic and English. However, they additionally recognize that students can utilize their home tongue or Indonesian to assist them in articulating and expressing ideas that are hard to put into words.

Meanwhile, Muhammad Safroodin stated that the impact of multilingualism extends beyond students' use of many languages in self-expression and understanding of society. Students can become aware of their own and other people's language use and they can take ownership of the things they do daily by learning different languages. However, discipline is required in the application of multilingualism to foster self-awareness in language use. This rule turns into a reinforcement that can inspire students and increase their desire to use different languages for everyday communication.

Students' multilingualism positively impacts social and academic learning in the classroom. Students are equipped to engage and confront strangers; they are ready for an interculturalism, or the sharing of cultures across borders. They can adapt to a greater variety of social settings. Putting multilingualism into practice can also assist them in interpreting their knowledge across languages. However, students will face a variety of challenges and issues while using multiple foreign languages and when using their mother tongue simply as a means of sentence expression. They must communicate in a language that is unfamiliar to them. These difficulties might decrease their capacity to apply different languages to social learning and may foster a sense of insecurity about each person's potential.

Based on the results of the interviews, teachers and students noted several challenges and issues with incorporating multilingualism into social and emotional learning. These issues may originate with them or with others. Due to this issue, multilingual students may become less

self-aware and socially conscious, which may lead them to underestimate the usage of many languages as a general rule.

Document Analysis

The researcher knows how to integrate multilingualism at the Mambaus Sholihin Islamic boarding school because of her six years of experience as a multilingual student. For this reason, the researcher began analyzing the multilingualism system three years ago. The Mambaus Sholihin Islamic boarding school's multilingualism program, which encourages students to communicate in Arabic and English daily, is a complicated issue. They have to speak English for one week and then Arabic for another week under the one-language-for-a-week application.

In the context of boarding schools, this language application system significantly affects the equality of two foreign languages. Students engage in a variety of activities to supplement their foreign language proficiency. A part child, however, may find it challenging to retain the vocabulary they have learned in a week due to this system, which may cause them to lose part of the terminology they were familiar with a week prior.

Apart from that, social presence is also considered in the learning of multilingualism because its application depends on social contact. In the context of an Islamic boarding school, the community plays a significant role in fostering multilingualism. However, since they could originate from different cultures and origins, it might be necessary to fully understand and accept the differences.

Findings and Discussion

Social-emotional learning and multilingualism are intricate processes that can raise each student's level of awareness in representing and transferring cultures. Teachers and students need to be mindful of a few factors while setting it into practice. According to Dijkstra, multilingual people can communicate effectively even when they must find the appropriate terms from a huge word library due to effective word selection procedures.⁸³ In line with the current survey, 60% of the multilingual students at the Mambaus Sholihin Islamic boarding school struggle with expression instead of comprehension in other languages. Their ability to communicate in a variety of languages is somewhat satisfactory although they struggle to interpret or reply to others in those languages. Thirteen out of twenty-five respondents said that their limited vocabulary made it difficult for them to use different languages when interacting.

"I find it difficult to express and process the words that will be conveyed"

This may result in discrimination or anxiety when corresponding in other languages. One of the students said that because they seem to be the most skilled in using different languages, students with a high ability or competence levels in those languages occasionally face discrimination as well.

⁸³ Ton Dijkstra, "Lexical Processing in Bilinguals and Multilinguals: The Word Selection Problem," *The multilingual lexicon* 1, no. 1 (2003): 11–26. https://doi.org/10.1007/978-0-306-48367-7_2.

Their social context presents another challenge in the form of discrimination they experience when they exchange cultures. Understanding the limitations of language in multilingualism also involves considering the effects of linguistic discrimination and the vitality of modern multilingualism. Linguistic discrimination can restrict the usage of some languages in a multilingual setting by excluding minority languages and speakers. This type of discrimination can result in bodily and psychological harm, as well as social, economic, and social exclusion. The excluding of minority languages and speakers of those languages can be the outcome of linguistic discrimination, which is frequently linked to historical and cultural preferences for particular languages. Multilingual speakers are more vulnerable to linguistic racism, which affects people in a variety of settings and emphasizes the need to fight it with research, education, and emotional support.⁸⁴ For certain students, linguistic discrimination can lead to linguistic racism. Linguistic racism refers to power structures that have an impact on health. To achieve health equity, it is necessary to value all people and groups equally, acknowledge historical injustices, and provide resources based on need.⁸⁵ One of the students said that because they seem to be the most skilled in using different languages, students with high ability or competence levels in those languages occasionally face discrimination as well.

“When I use one of the foreign languages that I am learning, especially English, people tend to dislike me and make fun of me and don't even want to talk to me because they don't understand what I say and this makes them confused which they don't know can get information well or can't communicate with me better and more comfortably according to them.”

Those challenges may result in anxiety when corresponding in other languages. Additionally, a lot of them believe that they face a lot of discrimination because of their limited vocabulary, dialect, word order, or incorrect pronunciation of words.

Teachers should assess those issues as they may affect social-emotional learning. They will disregard multilingualism and SEL itself when they tolerate language discrimination, which would restrict their ability to produce vocabulary. They tend to shy away from speaking to strangers and will only speak in their native language. Teachers should review how to establish an inclusive learning environment in the classroom. Education that is inclusive lowers inequalities and raises competencies, which spurs creativity and production.⁸⁶ Teachers must acknowledge the differences among their students and progressively introduce and review variety. Students possess the self-awareness necessary to acknowledge the social presence in their surroundings. Aside from that, language discrimination is positively impacted by regulation in applied multilingualism. Emotions are self-regulating systems that enable quick reactions and situational adaptations, and social interactions are crucial for acquiring the knowledge of norms and regulations that influence systems of regulation.⁸⁷ In conclusion, the

⁸⁴ Peter I De Costa, “Linguistic Racism: Its Negative Effects And Why We Need To Contest It,” *International Journal of Bilingual Education and Bilingualism* 23, no. 7 (2020): 833–837. <https://doi.org/10.1080/13670050.2020.1783638>.

⁸⁵ Camara P Jones, “Systems of Power, Axes of Inequity Parallels, Intersections, Braiding the Strands,” *Medical care* 1, no. 1 (2014): S71–S75. <https://doi.org/10.1097/MLR.0000000000000216>.

⁸⁶ Björn Högberg, “Educational Policies And Social Inequality In Well-Being Among Young Adults,” *British Journal of Sociology of Education* 40, no. 5 (2019): 664–681. <https://doi.org/10.1080/01425692.2019.1576119>.

⁸⁷ Arvid Kappas, “Emotion and Regulation Are One!,” *Emotion Review* 3, no. 1 (2011): 17–25. <https://doi.org/10.1177/1754073910380971>.

teacher's method encourages direct speaking in groups or individually and helps multilingual students develop self-awareness.

Conclusion

Social-emotional learning is connected to multilingualism. To perfect the learning process, both require the other. However, in putting it into practice, teachers and students will run into several obstacles in reaching the learning goals. Their learning may be affected by social and personal factors equally, such as linguistic discrimination that frequently exists among them and anxiety throughout making mistakes. It is the responsibility of teachers to identify themes and solutions so that students can learn more. In summary, comprehensive self- and social awareness in students as well as the role of the teacher are necessary for multilingualism and socio-emotional development.

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NANOCAGE MOLECULES: A COMPREHENSIVE BIBLIOMETRIC ANALYSIS OF THE APPLICATIONS OF NANOCAGE TECHNOLOGIES IN CONTEMPORARY RESEARCH

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Abstract: *The burgeoning field of nanotechnology has witnessed a surge in interest towards nanocages, molecular structures that are fullerene-like with hollow interiors and internal cavities, offering unique confinement properties. To elucidate this field, we conducted a comprehensive bibliometric review of nanocage applications. The quantitative variables were analyzed and performed using the Vosviewer. A thorough literature search was performed on Scopus, yielding 1418 selected articles and filtered into 223 articles selected. China has the highest publication rate of nanocage-related research over time and United States as the most collaborative country for publication related to nanocage. Adsorption emerged as the most frequent keyword in the application of nanocages. Ayub, K was the most productive author. Chemical Engineering Journal ranked as the top journal with an equal number of articles. The peak year for publications on applications in nanocage technology was 2022, with 48 publication followed by ministry of Education of The People's Republic China was highest institution's contribution in this field. These results indicate knowledge gaps and emerging trends, underscoring the potential of nanocages to address critical global challenges.*

Keywords: *Nanocages, Fullerene-like, bibliometrics, application*

Introduction

The idea of nanocages has become an interesting field for research and development in the field of nanotechnology (Malik et al., 2023). In the field of nanotechnology, the word "nanocages," which comes from the fullerene family of carbon-based nanomaterials, has become well-known for its versatility and enormous potential in a wide range of scientific and technological applications. Nanocage has become important since it describes a wide range of nanostructures that are distinguished by their tiny hollow, cage-like designs (Saleh & Hassan, 2023). These structures, which bear a resemblance to molecular cages, display exceptional properties and functionalities that have great potential for a wide range of scientific and engineering applications. With their limited areas, nanocages provide a special substrate for enclosing visitor molecules, giving exquisite control over chemical reactivity and interactions. Since the 1980s, when fullerene molecules were discovered, the idea of nanocages has expanded to include a wide range of materials other than carbon-based structures (Zaytseva & Neumann, 2016). Applications ranging from energy storage and sensing to medicine delivery and catalysis show promise for these nanoscopic frameworks. Their customizable characteristics, including size, shape, and surface chemistry, also make them extremely adaptable for a wide range of uses, including sensing, imaging, drug administration, and catalysis.

Although there has been a lot of progress and growing interest in nanocage materials, there is still a considerable research gap in the sector due to the comparatively limited study and use of these nanostructures. Although there is widespread recognition of the promise of nanocages for a range of applications, including drug administration, catalysis, and sensing, there are a number of obstacles that prevent theoretical ideas from being put into practice. The present status of research indicates a deficiency of thorough knowledge concerning the synthesis, characterisation, and modification of nanocages to customize their characteristics for particular uses. Furthermore, major obstacles stand in the way of the general adoption and industrial feasibility of nanocage production techniques due to their scalability and reproducibility. The current state of research highlights the vital need for methodical studies meant to close the gap between basic science and practical applications of nanocage materials, thus realizing their full potential and promoting innovation across a range of technological fields.

In recent years, bibliometric analysis has become incredibly popular in business research (Kumar et al., 2021). We begin a scholarly investigation driven by empirical data and quantitative reasoning with this introduction to bibliometric analysis as a mathematical and statistical undertaking. The aim of this paper to analyze about the trend in all related to bibliometrical analysis about the application of nanocage. The specific research questions of this study are the follows:

1. How is the global trend and citation on board diversity?
2. What is the country's contribution and collaboration in nanocage technology?
3. What is the popular institution's contribution in nanocage technology?
4. Which the authors and journal with greatest contribution in nanocage technology?
5. What is the most common application that adapted in nanocage?

Literature Review

Nanocage

Nanocages is nanostructure that resemble tiny cages on a nanoscale, distinguished by their porous frameworks and hollow interiors (Li et al., 2023). A wide range of materials, such as metals, metal oxides, polymers, and carbon-based materials, can be used to create them. Because of their distinctive construction, which provides unique benefits like high surface area, variable porosity, and multifunctionality, nanocages are appealing for a variety of applications. The structural characteristics of the nanocages include surface morphology, wall thickness, morphology and morphology. These characteristics can be optimized by careful consideration of component design and material selection. For example, the size of the nanocage can be controlled by varying the shape of the template during synthesis or reaction conditions. Like this, the nanocages can be shaped by using different templates or by modifying the growth of the nanomaterials.

Fullerenes are a family of carbon allotropes that were initially identified in 1985 by Kroto, Heath, O'Brien, Curl, and Smalley (Kroto et al., 1985). They are distinguished by their closed-cage structure, which is made up of pentagonal and hexagonal rings of carbon atoms. C₆₀, also referred to as buckminsterfullerene or buckyball, is the archetype fullerene; it has a symmetrical structure resembling a soccer ball with 60 carbon atoms (Kroto et al., 1985). Fullerenes provide an excellent starting point for the synthesis of nanocages by utilizing a variety of techniques, including chemical functionalization, surface modification, and

template-directed assembly. These techniques provide exact control over the dimensions, morphology, and surface characteristics of nanocages, allowing customized designs for particular uses. Moreover, fullerene-derived nanocages have remarkable physicochemical qualities, such as excellent stability, a large surface area, tunable pore size, and distinctive electrical and optical properties (Isaacson et al., 2009), making them very appealing for a variety of technological developments.

The fabrication of nanocages requires precise control over nanoscale assembly processes and careful selection of materials and methods to achieve desired structural characteristics. The investigation of nanocage applications has expanded rapidly in the last several years, covering a wide range of industries including drug delivery, catalysis, sensing, energy storage, and biomedical imaging. The work of (Kazemzadeh & Mozafari, 2019), is noteworthy because it emphasizes the utilization of fullerene-based nanocages as adaptable platforms for targeted drug administration. Similar to another research, the remarkable catalytic performance of fullerene-derived nanocages in a range of chemical processes, highlighting their potential as effective catalysts for environmentally friendly chemical synthesis (Dai et al., 2023).

Bibliometric

Bibliometric analysis is a method of measuring, tracking, and searching bibliographies using a number of quantitative techniques (Roemer & Borchardt, 2010). It lists the papers of the authors, the most popular journals, the methods used and the results (Rojas-Sánchez et al., 2023). The first bibliometric examination looked at their most important publications and intellectual flow, primarily based on author or citation information (Calero-Medina & Noyons, 2008) (Dai et al., 2023). Network analysis and sociometric analysis based on abstract data, titles, and keywords have recently been incorporated into bibliometric analysis (Rezende et al., 2018). A bibliometric analysis depends on pointers where the unwavering quality basically depends on strategy, and a few information standardization shapes are required (Abdullah & Sofyan, 2023). It was performed by recognizing, sorting out and examining the foremost basic viewpoints of a particular study theme (Abdullah et al., 2023).

Material and Methods

Data Source and Data Collection

Scopus served as the main source of information for the exported file. To mitigate the bias caused by daily database updates, the literature search was conducted on a single day. The Figure 1 displays a flowchart of the search strategy for every database. The term of the time range was unrestricted, but the document type was restricted to original articles only. Each article's details, including the author, title, abstract, affiliation, year of publication, source, and keywords, were exported from Scopus in CSV forms. 1418 articles in all were found and retrieved from the Scopus database, leading to additional record filtering.

Data Extraction

A Microsoft Excel file was created by exporting the CSV file. The first step in the article selection process involved checking titles for inclusion and exclusion criteria. The relevance of the chosen publications to the examination of nanocage applications was then determined

by reading their abstracts, and in some cases, the full paper for comprehensive analysis. Authors' names, article titles, publication sources, affiliations, publication years, keywords, and citation counts were among the information extracted from the chosen publications

Data Analysis and Visualization

Microsoft Excel 365 was used to manually examine the data by the exported files from scopus. Numerous factors were subjected to statistical analysis, such as the distribution of publications by year, the authors that publish most frequently, institutions and the country that provide the most publications, journal sources, and keywords. VOSviewer version 1.6.20 (<http://vosviewer.com>), a program for visualizing networks in scientific literature, was used to visualize the extracted data. This software offers insights into co-authorship, citations, co-citations, and co-occurrence analysis and to explore the visualizing map in relationship between journal, authors, countries, co-occurrence analysis, and the co-authorship (Wu et al., 2021)

Results and Discussion

Global Trend

1418 papers in total were obtained from Scopus. As it observed in Figure 1, just 223 items of paper were eligible for inclusion criteria. Figure 2 illustrates the upward trend in worldwide publishing about application of nanocage from 1991 (n =1) to 2024 (n = 8). The highest total of publication was reached in 2022 is 48 paper.

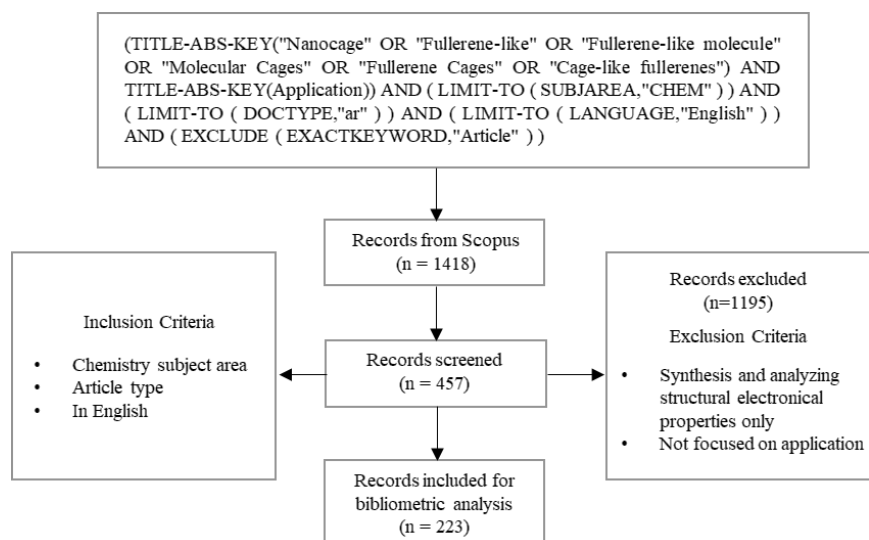


Figure 1: A Flowchart of Screening Strategy

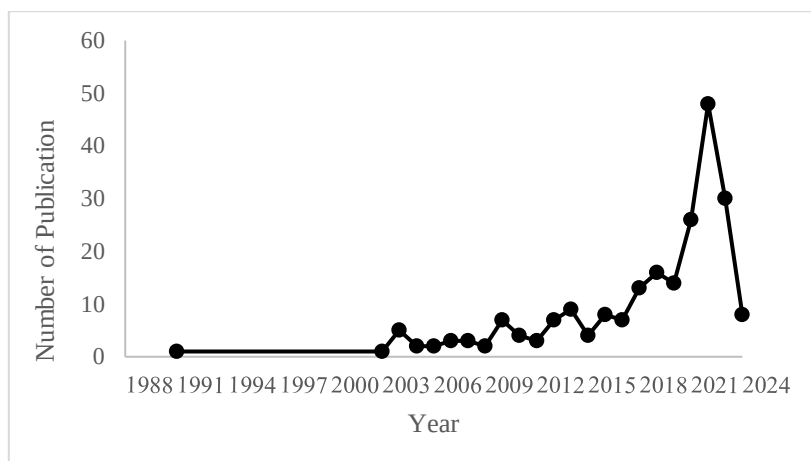


Figure 2: Number of Publications Per Year

Contribution of Countries

In total, 41 nations contributed the implementation of nanocage. Figure 3 leading the field with 116 publications was the China, followed by United States (n = 27), Iran (n = 25), India (n = 13), and Pakistan (n = 10). Based on co-authorship analysis of the countries, 11 clusters totaling sixty links were identified in Figure 4. Occupying the center of the largest cluster, the United States boasted a total of eight links with a link strength (TLS) of 16, showcasing its strong ties to several other nations including India, Iran, Iraq, Turkey, Pakistan, Saudi Arabia, South Korea, Japan, Spain, China, and United Kingdom. Furthermore, with seven links and a TLS value of 13, Saudi Arabia hosted the second-largest cluster.

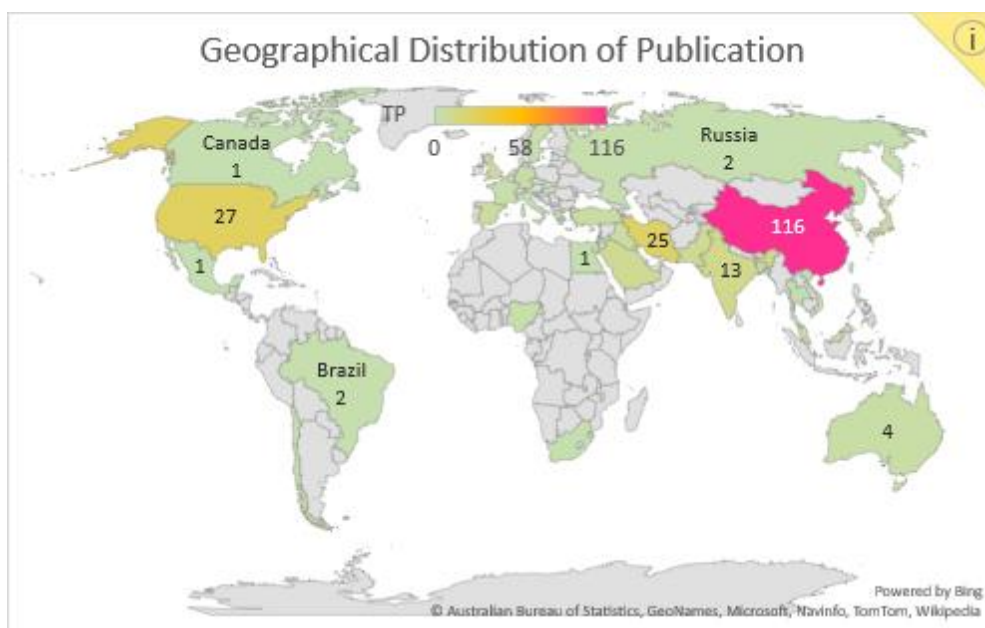


Figure 3: Countries's Contribution

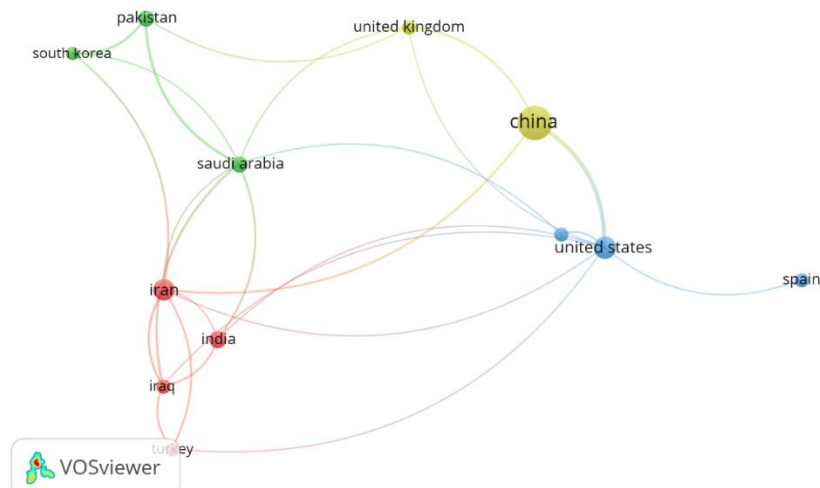


Figure 4: Visualization Map of Countries's Contribution

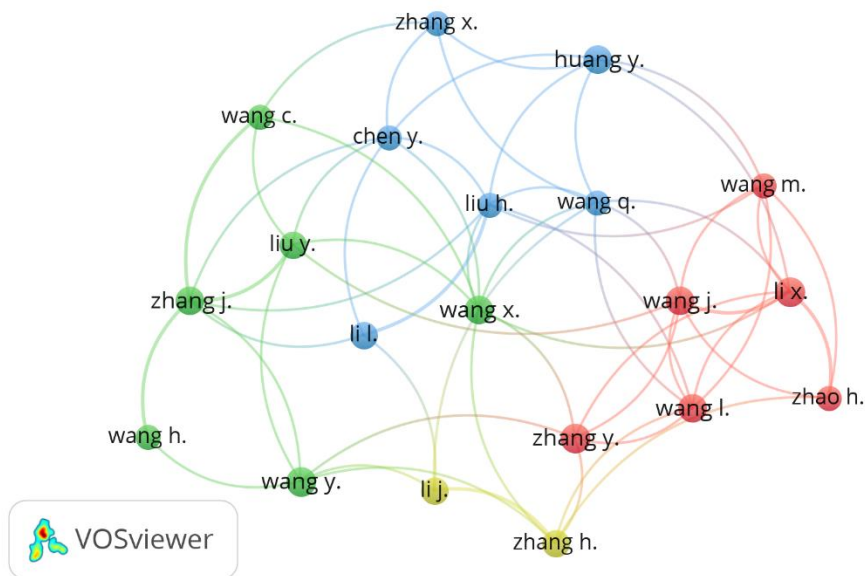


Figure 5: Visualization Map of Authors's Co-Authorship

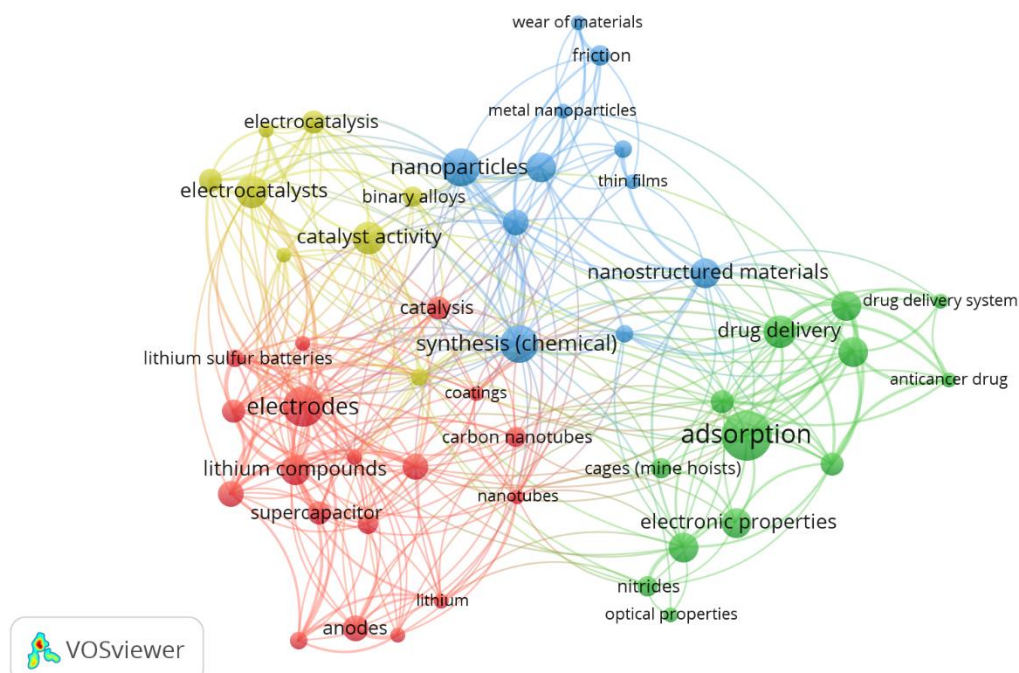


Figure 6: Visualization Map of Keyword Co-Occurance Analysis

computational and bio-simulation research group, university of calabar, calabar, nigeria department of chemistry, comsats university islamabad, Abbottabad campus, Abbottabad, 22060, Pakistan

department of chemistry, comsats university, Abbottabad campus, Abbottabad, 22060, Pakistan

college of technical engineering, the Islamic university, Najaf, Iraq

Figure 7: Visualization Map of Institution's Co-Authorship

Contribution of Institution

In total, 31 different institutions contributed to research on the topic. Ministry of Education of the People's Republic of China made the most contributions with 23 total publication, followed by Chinese Academy of Sciences (n=15), COMSATS University Islamabad, Abbottabad Campus (n=9), Qingdao University of Science and Technology (n=7), and other universities. Furthermore, the visualization in Figure 7 displays 4 clusters with a total of 6 items, 2 links, and 5 TLS Value as per the co-authorship analysis. Islamic university of Najaf, Iraq has a largest TLS Value at 3 with 20 citation in 3 documents related this topic.

Contribution of Author

Publications on application of nanocage based on nanomaterial involved 31 authors from various countries. Ayub, K. was the highest ranked of them all with 8 publications and 209 total citations. With five publications, Tenne, R. came in second, followed by Hussain, R. (n = 8), Mahmood, T. (n = 7), Naffakh, M. (n = 7), and Adnan, M. (n = 3). The visualization network in Figure 5 displays four clusters with varying quantities of items and 59 linkages based on co-authorship analysis.

Journal Analysis

A total of 31 journals published selected publications on the subject. Among them, 68 papers were published in the top 10 journals in Table 1. The top-ranked journal was the Chemical Engineering Journal, with 13 publications and 138 total citation with 7 papers.

Table 1: Most Active Source Title

Source Title	TP	TC	Publisher	Cite Score
Chemical Engineering Journal	13	138	Elsevier	N/A
Chemical Science	7	99	Royal Society of Chemistry	14,4
Journal of Materials Chemistry A	7	104	Royal Society of Chemistry	19,6
Inorganic Chemistry	6	154	American Chemical Society	7,6
Journal of Molecular Liquids	6	100	Elsevier	10,2
Journal of Molecular Structure	6	23	Elsevier	7
Journal of Physical Chemistry C	6	257	American Chemical Society	6,4
Rsc Advances	13	9	Royal Society of Chemistry	6,8
Small	7	59	Wiley-Blackwell	19,0
Carbon	7	139	Elsevier	20,1

Notes: TP=total number of publications; TC=total citations

Keywords Analysis

In 223 articles, 2319 keywords were used a total of 1441 times. The most frequently occurring keywords were "Adsorption" and "Electrodes," appearing 17 and 13 times, respectively. The next most popular keywords were nanoparticles, synthesis (chemical), nanoparticle, electrocatalysts, and drug delivery, with 13, 13, 13, 11, and 11 occurrences, respectively. The co-occurrence analysis separated all discovered terms into 4 clusters in total 5 items, as illustrated in Figure 5. "Adsorption" and "Electrodes" were the most notable clusters. This indicates that the most prominent topics in nanocage application research are adsorption with TLS values of 27 and 49 respectively.

Discussion

Nanocages, intricate nanostructures with hollow interiors, have emerged as versatile tools with immense potential across various fields (Li et al., 2023). Their unique properties, such as high surface area-to-volume ratio (Biener et al., 2009), tunable pore size, and controllable surface chemistry, make them ideal candidates for applications in drug delivery, catalysis, imaging, sensing, etc (Khan et al., 2019). To maximize the potential of nanocage applications, strategic approaches are essential. By fostering innovation and collaboration, researcher can unlock the full potential of nanocages and harness their transformative capabilities for the benefit of society.

Despite significant advancements, challenges persist in areas such as scalability, biocompatibility, and targeted delivery efficacy (Hamid & Manzoor, 2020). Moreover, the potential of nanocages in emerging areas such as environmental mitigation, energy storage, and nanoelectronics is still largely untapped, requiring interdisciplinary efforts to unlock opportunity new and address existing constraints are needed to stimulate

The findings of this research show that research in the field of nanocage-based nanomaterials has experienced an increase in research exploration, publications experienced an increasing trend from 1991 to 2023 with the potential to increase rapidly in 2024. A total of 222 articles were published during that period. Based on these discoveries, the first research in 1991 discovered the application of $[^{11}\text{BH}]_6^{2-}$ ion-based nanocages to detect its electronic structure. The authors in the early years explained the synthesis and electronic structure of nanocage systems that will be applied to various sectors. Recently, nanocages function as gas sensors. proven by the latest research in 2024 dominated by the sensing capabilities of nanocages. Then followed by as an adsorption agent and as a drug nanocarrier

As a gas sensor, nanocages utilized their high surface area and tailored pore structures to detect and quantify specific gases (Pereira Silva & Varela Júnior, 2023). When exposed to gas molecules, the surface of the nanocage undergoes changes in conductivity, fluorescence, or other properties, enabling sensitive detection. As an adsorption agent, nanocage retain molecules or ions within their hollow interiors or on their surfaces, making them ideal candidates for purification, separation, and storage processes (Kaewruksa et al., 2022). By adjusting the chemical composition and surface functional groups of the nanocages, researchers can tailor their adsorption properties to target specific contaminants or pollutants, offering sustainable solutions for water treatment, gas purification, and environmental remediation. In drug delivery, nanocage's hollow interiors provide ample space for drug encapsulation, while surface modifications enable controlled release and enhanced biocompatibility (Karimi et al.,

2017). Nanocages can be functionalized with targeting ligands to improve specificity and reduce off-target effects, offering personalized treatment options for various diseases, including cancer, infectious diseases, and neurological disorders.

The application of nanocages as adsorption agents, especially for water and gas contaminants, is becoming a fairly rapid trend and the most applications of nanocages are from 2021-1991. this is demonstrated in the analysis of co-occurring keywords in publications related to cage-based nanomaterial applications. Keywords are terms or phrases that represent the main concepts or themes of a research article. Followed by “electrodes” for application of nanocage properties making them promising candidates for energy storage and conversion devices such as batteries, supercapacitors, and fuel cells. By incorporating nanocage materials into electrode designs, researchers aim to enhance performance metrics such as energy density, power density, and cycling stability, ultimately contributing to the development of more efficient and sustainable electrochemical technologies.

As many as 41 countries contributed to this topic, of which China had the most publications, followed by the United States as shown in Figure 3. This shows that the articles published are increasing in the international arena. It shows the significance of the distribution in various countries which is quite even across the globe. China shows the highest ranking of total paper contributions in the international arena. These two countries are the 2 largest paper producing countries in the field of nanocage applications.

Collaboration between institutions, authors and countries is analyzed using bibliometrics based on co-authorship and Total Link Strength (TLS) shows the frequency and closeness of collaboration between authors, institutions and countries. A high TLS value indicates a high frequency of collaboration between the two (Wu et al., 2021). In this research, Ayub.K and Tenne, R were found to have had the most collaborations with other authors in the field of cage-based nanotechnology to synthesize nanocages and the applications of these nanocages.

Meanwhile, from an institutional perspective, the Islamic University of Najaf, from Iraq, is the most collaborative and has the largest TLS Value at 3, collaborating with Pakistan and Nigeria. Collaborative author impact in bibliometrics refers to the influence and productivity of researchers who collaborate with others on scholarly publications. Collaborative authorship patterns to assess the impact of research collaborations on scientific productivity, citation rates, and overall scholarly impact (Patel et al., 2019). Author collaboration in terms of the co-occurrence authorship graph has not yet collaborated competitively so that many authors still write individually. This is a concern for future collaboration to find applications with a deep, multidisciplinary scope.

Chemical Engineering journal with 13 publications is the journal with the highest total publications compared to other journals with the most significant numbers. Followed by Chemical Science, Journal of Materials Chemistry A, Inorganic Chemistry, Journal of Molecular Liquids. Productive journal impact refers to the influence and productivity of academic journals in publishing research articles. Chemical Engineering Journal, as a journals with high productivity attract a large number of submissions and publish a substantial volume of articles each year. It play a crucial role in disseminating new research findings, shaping scholarly discourse, and advancing knowledge on application of nanocage.

Conclusion

The use of nanocages in various applications shows significance from 1991 to 2023, which has the potential to continue to increase in 2024. China is the country with the largest contribution and the United States is the country with the largest collaboration in this field. Ministry of Education of the People's Republic of China was the most contributing with 23 total publications. Ayub, K. as the author with the highest contribution and Chemical Engineering Journal as the journal with the highest total publications in nanocage applications. The most popular application of nanocages is as an adsorbing agent for adsorption process, followed by application for electrodes.

Acknowledgement

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GREENING THE SCIENCE CLASSROOM: A COMPREHENSIVE REVIEW ENVIRONMENTAL EDUCATION PRACTICES

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Abstract: *The implementation of a high-quality education system is necessary to face all the rapid changes in the world. The education system needs to be adapted to the problems faced such as environmental problems faced by modern humans today. Green education is an education system consisting of programs, tools and policies that aim to produce environmentally sustainable individuals. Eco-friendly education and training that emphasizes the sustainable use of resources and the application of environmental conservation is the idea behind greening the classroom. This systematic review aims to review the development and implementation of environmental education for greening science classrooms. The systematic review was designed based on the PRISMA Statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The review was conducted using the three steps listed in the PRISMA diagram, including identification, screening and inclusion. Furthermore, data sources came from SCOPUS, Google Scholar and ERIC, articles from third sites were only retrieved between 2018 and 2024. Several criteria for evaluation and scoring were considered. The article search was refocused by using keywords related to the topic and question statement. Further review of the articles resulted in three major themes. These themes consisted of greening science classrooms and environmental education, challenges or barriers in implementing environmental education and also innovative pedagogical strategies. It is hoped that this study will serve as a reference in the development of environmental education and future researchers.*

Keywords: *Systematic Review; Greening; Environmental Education*

Introduction

The changes taking place in the world today are quite worrying and sad. The condition of the earth, where humans live, is starting to become worrying. Global warming and environmental issues as well as dynamic human development are increasingly worsening the condition of the earth. Dynamic human development certainly gives rise to new challenges such as uncontrolled technological progress, social and cultural developments, massive individual growth, expansion of the world economy, decline in adequate ecosystem land, all of which are interrelated in supporting survival. If challenges like this cannot be handled properly, it will increase the vulnerability of modern individuals to the dangers of exposure to nature and

technology. However, to be able to overcome these problems all can be done by paying more attention to the education system throughout the world (Kurup et al., 2021). The education that needs to be promoted now is education that leads to environmental improvement.

Greening education is an education system that innovates and integrates with a sustainable environment. The concept presented in the implementation of greening classrooms is environmental teaching and training based on eco-friendly, use of sustainable resources and adopting the concept of environmental conservation (Poza-Vilches et al., 2022). This is all intended to increase and encourage students' awareness of the surrounding environment and the deteriorating condition of the earth. We can logically say that by increasing public awareness and knowledge of global conditions, global conditions can improve. And of course global conditions can be controlled through an education system that focuses on the environment. However, in implementing this approach in educational units, of course many problems are faced, such as challenges faced by teachers, lack of resources, teacher training and curriculum alignment, as well as various other varied challenges. Apart from that, in implementing environment-based education it is also necessary to determine the best pedagogical and teaching methods. And this of course requires planning and design as well as good observation to determine it.

Methodology

Aims

The purpose of this study is to systematically review previous research related to the development and implementation of environmental education for greening science classrooms. The main focus of this study is to analyze the teacher side of green classroom development. We pose several research questions that will lead to a deeper understanding of the subject matter, as follows.

- RQ1: What are the primary challenges and barriers that educators encounter when implementing environmental education in science classrooms, with a focus on resource constraints, teacher training, and curriculum alignment, and how do these challenges vary across different educational settings and regions?
- RQ2: Which innovative pedagogical strategies and teaching methods demonstrate the highest effectiveness in fostering ecological literacy and sustainability awareness among students in science classrooms, and how can these strategies be adapted to meet the evolving needs of future learners?

Design

SLR is a writing technique that makes it possible to collect facts in accordance with the topic being discussed by adopting predetermined criteria and this is done to obtain answers to the research questions asked (Mengist et al., 2020). The use of a framework in the form of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) can help and guide systematic reviews of research and reduce bias or tendencies by using systematic methods (Wu et al., 2018).

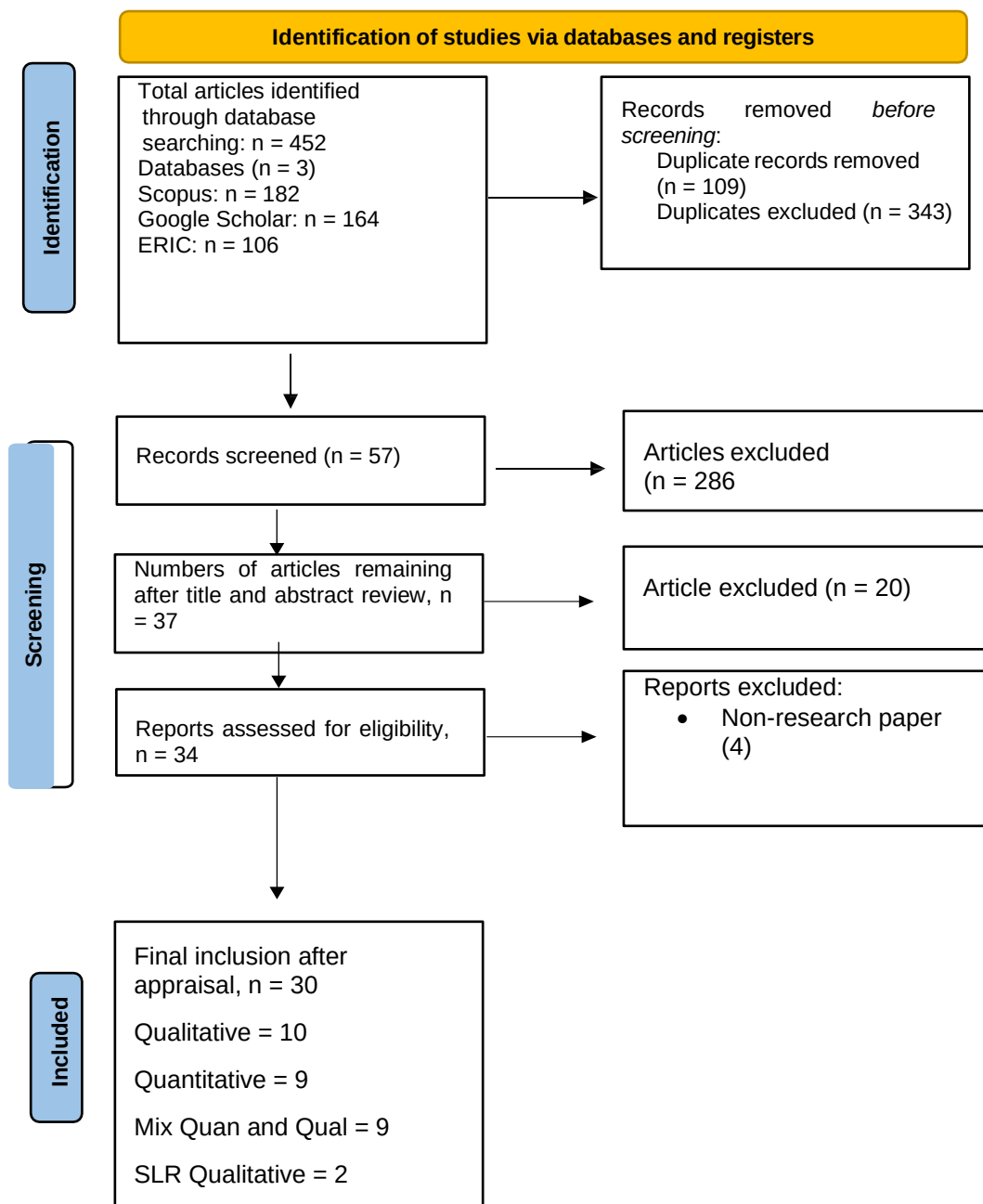


Figure 1: PRISMA Flow Diagram for New Systematic Reviews

Search Strategy

Searches for reference sources were carried out using various sites including Scopus, ERIC and Google scholar. To obtain relevant reference sources, a search strategy was formed in the

form of using keywords. “Environmental Education” OR “Sustainable Education” OR “green education” OR “eco education” OR “climate” OR “biodiversity” AND “Science Classroom*” OR “science*” OR “biology” AND “Challenge*” OR “Barriers” OR “Curriculum Alignment” OR “Teacher Training” OR “Comparative Studies” OR “Regional Variations” OR “Obstacles” OR “Educational Policy” OR “Global Perspectives” OR “Resource Constraints”.

Screening

A few criteria for evaluation and assessment are considered. First, related to literary genres, only journal articles with empirical facts that are verified indicate articles with a literary style, book spines, book chapters, book reviews, and conference proceedings that are not presented. Furthermore, in order to address constraints and difficulties in the research process, the focus of the study should only be on English-language articles rather than non-English publications. The third, which has to do with time constraints, is divided into five years (2019 to 2024), which is a suitable time frame to see how related research and publications have developed. As the review process focused on education leading to environmental education and the challenges faced by educators as well as various pedagogical applications in the implementation of environmental education, articles indexed in environmental science, published articles that were not in these fields were excluded. The article search was refocused by using keywords related to the topic and question statements, including environmental education, education, teaching and learning.

Table 1: Screening Table

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles and systematic review)	Book series, book, chapter in book, conference proceeding
Language	English	Non-english
Time line	Between 2019-2024	<2018
Indexes	Social Science Citation Index, Emerging Sources Citation Index, Art and Humanities Index (Web of Science)	Science Citation Indexed Expanded

Data Abstraction and Analysis

Analysis and evaluation were done on the remaining papers. A deliberate effort was made on certain research that addressed the issues posed. The needed data included responses to the study questions on the primary obstacles and difficulties faced by teachers when putting environmental education into practice, as well as cutting-edge pedagogical approaches and instructional techniques that have the greatest impact on environmental education. In order to discover relevant topics and sub-themes, the abstracts were reviewed first, followed by the entire articles (in-depth). Themes connected to environmental education techniques were found through qualitative analysis utilizing content analysis.

Results

The results of the review are presented in three major themes that are subdivided into several subthemes. The themes reflect the development of science classrooms towards environmental education. The themes consist of greening science classrooms, environmental education, challenges and barriers in implementing environmental education, innovative pedagogical strategies, and the development of environmental education teaching strategies that can be adapted by future learners. The results provide a comprehensive analysis of the implementation and development of greening the science classrooms.

Study Characteristic

A total of eleven studies focused on challenges and barriers to implementation of environment education (Eliyawati et al., 2023; Fajri et al., 2023; Fru & Ndaba, 2023; Huoponen, 2023; Marpa, 2020; Martínez Valdivia et al., 2023; Okada & Gray, 2023; Sofyan A Gani et al., 2023; Su & Zhao, 2023; Van Dijk-Wesselius et al., 2020; Waltner et al., 2020). There are fifteen studies focused on teaching method or pedagogical in implementation of environment education (Ecevit et al., 2020, 2020; Lin et al., 2023; Martínez Valdivia et al., 2023; Ricardo Barreto et al., 2022; Ustun & Tracey, 2021; Van Dijk-Wesselius et al., 2020; Zamora, 2023);(Butler, 2022; Hana Naqiyya Nada et al., 2021; Mahmud et al., 2020, 2020; Manzano-León et al., 2021; Matsekoleng et al., 2024; Nurwidodo et al., 2020; Ouariachi et al., 2020; Probosari & Nugraheni, 2021). And five studies explain about the environment education (Biancardi et al., 2023; Husamah et al., 2022; Maurer et al., 2020; Motevalli et al., 2022; Van Den Bogerd et al., 2020).

Furthermore, ten studies applied a qualitative approach while another nine studies used quantitative analytic methods. And there are nine studies employed a mixed methods (qualitative and quantitative) approach. And there are two studies used SLR qualitative analytic methods. Regarding years published, nine articles were published in 2020, four articles were published in 2021, four articles were published in 2022, twelve articles were published in 2023 and one article are published in 2024.

Environmental Education and Green Classroom

There are four articles found and used to review environmental education (Biancardi et al., 2023; Husamah et al., 2022; Maurer et al., 2020; Motevalli et al., 2022) and one article to review green classroom (Van Den Bogerd et al., 2020). Two articles using quantitative method (Maurer et al., 2020; Van Den Bogerd et al., 2020), one article using qualitative metode (Motevalli et al., 2022), one article using the combined method between qualitative dan quantitative (Biancardi et al., 2023) and one article using SLR qualitative method (Husamah et al., 2022). The results of the review broadly explain that environmental education is an educational system carried out with the ultimate goal that students and all school residents have knowledge and awareness of the environment. According to (Husamah et al., 2022) environmental education is an educational system that provides methods or programs, tools, and approaches that aim to support students to have knowledge, awareness, and behavior that leads to the environment. In (Maurer et al., 2020) explained that behavior that refers to the environment is closely related to factors outside of school such as the way parents educate, as

well as the demographic factors of each student. (Motevalli et al., 2022) introduces another part of environment education, Education for Sustainable Development (ESD), which aims to strengthen individuals or students to have a mind that leads to a sustainable future, which can be implemented in various fields of life. (Biancardi et al., 2023) explained the importance of sustainability education, with the implementation of sustainability education can encourage students to have transformative innovations so that students can face complex problems in the future. In (Van Den Bogerd et al., 2020) said that environmental education is related to the green classroom. Green classroom that is meant by (Van Den Bogerd et al., 2020) incorporating biophilic elements into the learning space.

Challenges and Barriers when Implementing Environmental Education

This section concentrates on the challenges and barriers faced when implementing an education system that refers to environmental education. These challenges and barriers are divided into several sections including resource constraints, teacher training and curriculum allignment. The resource constraints section contains six articles (Fajri et al., 2023; Fru & Ndaba, 2023; Huoponen, 2023; Marpa, 2020; Sofyan A Gani et al., 2023; Van Dijk-Wesselius et al., 2020; Waltner et al., 2020), four articles explained about teacher training (Eliyawati et al., 2023; Marpa, 2020; Martínez Valdivia et al., 2023; Waltner et al., 2020), and five article explained about curriculum (Fru & Ndaba, 2023; Martínez Valdivia et al., 2023; Okada & Gray, 2023; Sofyan A Gani et al., 2023; Su & Zhao, 2023).

Resource Constraints

In implementing environmental education, one of the obstacles and challenges faced is resource constraints. The results of the review show that these obstacles can include constraints on individuals as teachers and students as well as constraints on facilities and infrastructure. According to (Marpa, 2020) stated that in integrating the environment, obstacles are faced in the form of the lack of instructional materials. In (Waltner et al., 2020) obstacles can be in the form of teaching materials that have not been well developed and follow the latest issues. Whereas according to (Sofyan A Gani et al., 2023) and (Fajri et al., 2023) said the obstacles were the lack of budget and the lack of collaboration between schools, government and society. In (Fru & Ndaba, 2023) that obstacles can be in the form of little time for teachers to provide practical environmental awareness to their students. And according to (Huoponen, 2023) obstacles can be the lack of students' environmental literacy level.

Teacher Training

Teacher training can also pose challenges and barriers to the implementation of environmental education. This is reflected in the review of four articles. According to (Marpa, 2020) The successful implementation of environmental education is based on the teacher training provided to teachers. Whereas in (Waltner et al., 2020) there is a need to improve teachers' knowledge and skills on Education Sustainability Development, which can be achieved through teacher training programs. This is strengthened in (Martínez Valdivia et al., 2023) which states that teacher training programs can prepare teachers' competencies in continuing education. In (Eliyawati et al., 2023) explained several teacher training programs that can be

done to improve the quality of teachers including webinars, lecturing discussions, giving projects, experiments, workshops and field studies.

Curricula Allignment

The use of curriculum as a reference in the education system can also be an obstacle in the implementation of environmental education. According to (Martínez Valdivia et al., 2023) that the curricula used must be able to develop teacher competencies based on the principles in continuing education. This is strengthened in (Su & Zhao, 2023) which states that curriculum integration is closely related to the quality of education, and this is included in the green education setting that leads to the goal of sustainability education. It further states that the curriculum should aim to promote a sustainable future. Whereas according to (Fru & Ndaba, 2023) that the continuing education curriculum is only concentrated on final year students, so that the objectives of environmental education cannot be achieved optimally. (Sofyan A Gani et al., 2023) reinforcing the statement that the curriculum implemented in many schools may not allocate appropriate time for environment education so that the goal of integrating a sustainable environment will be difficult to achieve. (Okada & Gray, 2023) describes a framework that can be integrated into the environmental education curriculum, namely Care-Know-Do. In their article (Okada & Gray, 2023) explained that Cre-Know-Do is designed to teach students about Climate Change and Sustainability. It can strengthen students' knowledge of current environmental issues.

Innovative Pedagogical Strategies

This section contains various pedagogical strategies in the form of teaching methods, and various programs that can be used in implementing environmental education. There are fifteen studies that describe various pedagogical innovations that can be used in the implementation of environmental education. There are three main topics in this section, which consist of teaching methods used in nine articles (Butler, 2022; Ecevit et al., 2020; Mahmud et al., 2020; Manzano-León et al., 2021; Nurwidodo et al., 2020; Ouariachi et al., 2020; Ustun & Tracey, 2021; Van Dijk-Wesselius et al., 2020; Zamora, 2023), three articles explained about Adiwiyata program (Hana Naqiyya Nada et al., 2021; Nurwidodo et al., 2020; Probosari & Nugraheni, 2021;), and three articles reviewed about incorporating technology in environmental education practices (Jardin, n.d.; Lin et al., 2023; Ricardo Barreto et al., 2022).

Teaching Method

Teaching method is a method used in the learning system so that learning can be carried out properly and achieve the ultimate goal of learning. There are many teaching methods that have been used by teachers and adapted to the topic and learning objectives to be achieved. In learning environment education and or sustainability education has been widely studied. In (Van Dijk-Wesselius et al., 2020) explaining that one of the methods suitable for environmental education is outdoor learning or field trips, this method concentrates on direct teaching of the environment so that it can spur students' awareness of their environment. Another method is CSL or Community Service Learning in the study of environmental education (Zamora, 2023), The results of his study explain that this method can raise awareness and increase student engagement that leads to a sustainable environment. (Ustun & Tracey, 2021) explained another

pedagogy, Blended Learning, according to his study that the Blended Learning method can increase collaboration and student engagement leading to a sustainable environment when combined with self-regulation. While the study by (Butler, 2022) suggested Hands-on Learning method for teaching environmental education, this is because it can increase students' active engagement and real world relevance and skill development. According to (Ecevit et al., 2020) Another method mentioned is the constructivist approach, which emphasizes the active role of students in building their understanding related to the environment. Problem Based Learning (PBL) is also suggested as a teaching method in environmental education (Nurwidodo et al., 2020). Meanwhile in (Mahmud et al., 2020; Manzano-León et al., 2021; Matsekoleng et al., 2024; Ouariachi et al., 2020) explain the gamification method in teaching environmental education so as to create a fun learning atmosphere.

Adiwiyata Program (Green School Initiatives)

Adiwiyata program is a learning program offered by the Indonesian government as a means of implementing sustainable environment-based education. According to (Probosari & Nugraheni, 2021) explained that the implementation of the Adiwiyata program faced challenges in the form of difficulties experienced by teachers when providing stimulation to students to have high order thinking skills related to the environment. In (Hana Naqiyya Nada et al., 2021) explained the strategies used in the implementation of the Adiwiyata program, including developing environmental innovations that can attract school members to be involved in environmental conservation. In addition (Nurwidodo et al., 2020) explained the positive impact of implementing the Adiwiyata program in schools.

Integration of Technology in Implementing Environmental Education

The use of technology is considered quite important as a means of delivering and implementing environmental education. The use of technology can support programs and methods used in environmental education or sustainability education. In a study conducted by (Ricardo Barreto et al., 2022) mentions the use of the type of technology in the form of Information and Communication Technologies (ICTs), educational platforms, web 2.0 resources, mobile applications (Apps), and virtual reality. In (Jardin, n.d, 2023) describes the use of AR in encouraging student engagement in interacting with ecosystems. And in the study by (Lin et al., 2023) explain the use of AI and IT in training Eco-Friendly and personalized learning experiences.

Discussion

This study has attempted to systematically analyze the existing literature on Greening the Science Classroom review of Environmental Education Practices. Greening the classroom that leads to environmental education is needed now and will continue to be studied for a sustainable future. Environmental education is a series of educational systems that are created, developed and run with the aim of producing and individual who has high knowledge and respect for the environment and nature. A systematic review of this study was conducted using 3 database sources that produced 30 articles related to environmental education practices. The results show a variety of variations in the implementation of environmental education, from the 30 articles obtained there are articles that present various challenges and obstacles to the

implementation of environmental education. While other articles present the results in the form of programs in the implementation of environmental education which also includes teaching methods.

The study is divided into 3 themes and 6 subthemes that are specifically explained. Based on the review of selected articles, several points were highlighted on the development and implementation of environmental education in various countries. The review is divided into the main theme, namely an overview of greening the classroom, and various challenges, obstacles in the implementation of environmental education as well as a discussion of the implementation of environmental education.

In the implementation of the environmental education system, it was revealed that there are quite a number of challenges and obstacles faced by the parties involved in an education system. Most reviews revealed that the challenges come from a variety of sources such as curriculum issues (Fru & Ndaba, 2023; Martínez Valdivia et al., 2023; Sofyan A Gani et al., 2023; Su & Zhao, 2023), low resources such as lack of teaching experience (Marpa, 2020), to the lack of facilities and the low literacy of students towards environmental learning (Huoponen, 2023). These challenges and obstacles can certainly disrupt the environmental implementation process so that the goals to be achieved are not successful or not optimal. It is necessary to review these challenges and obstacles, including by analyzing the curriculum used, it is necessary to change and develop the curriculum so that it can be used for the implementation of environmental education. Changes to the curriculum will certainly change a lot of the education system that is carried out (Muhammad Dicky Darmawan & Dagamac, 2021). And of course, other obstacles such as the lack of teacher skills can be improved and enhanced by teacher training efforts, which can be provided in the form of workshops and webinars (Eliyawati et al., 2023).

To smoothen the implementation of environmental education, many articles reveal various innovative pedagogical strategies that contain programs and methods that can be used. Many articles suggest using the gamification method because it is felt that it will create a fun learning atmosphere. So that students can easily receive lessons well. The review of various articles mentioned several games that can be used including JouleBug (Mahmud et al., 2020), meanwhile (Ouariachi et al., 2020) mentions 6 other types of games including. In addition to the use of games during the learning process, other articles mention the importance of the involvement of technology, including AR, AI and IT (Lin et al., 2023). And another article mentions the use of different types of databases that can help learners (Ricardo Barreto et al., 2022). Many articles also mention other teaching methods that can be used among constructivist (Ecevit et al., 2020), PBL (Nurwidodo et al., 2020), hands-on learning (Butler, 2022), and fieldtrip (Van Dijk-Wesselius et al., 2020). The review shows that these approaches in the learning system are proven to increase students' knowledge and awareness towards environmental sustainability. In addition, this type of learning is more effective because it stimulates students' higher-order thinking and student centered learning.

More specifically, in the review of several articles, one of the environmental education programs that has been implemented in Indonesia is the Adiwiyata (Greening school) program. Several articles mention that this program was developed by the Indonesian government as a manifestation of public awareness of the deteriorating global environment. The Adiwiyata program will certainly create future individuals who have awareness and behavior that respects

nature and the environment. And so on, this program must continue to be developed and implemented in many schools in Indonesia and even in schools in other countries, so that more individuals will have good environmental awareness.

The Adiwiyata program sounds very tempting to continue to be developed and can be used by many schools. The right strategies are needed to be able to develop this education program. Improvements and performance enhancements can be made such as reviewing the curriculum to be used, the methods to be used to assess the desired goals or outcomes. Reviewing the curriculum used is crucial and important, because the curriculum is the axis used as a guide in this program. The curriculum must take into account the appropriate time and teaching materials at each level of education. It is also necessary to analyze teaching methods and approaches that are tailored to the type of material and educational level of each student. So that with this improvement and quality improvement, it is hoped that the Adiwiyata program and other greening school programs can be more qualified and triumphant to create smart individuals who can handle all current and future world problems.

Strenghts and Limitations

This study is one of the studies that presents the results of a literature review carried out with rigorous and well-structured steps. By using a structured methodology so as to produce a good form of study. In addition, this study uses relevant literature sources and goes through a good selection process so that only relevant articles are selected. The selection of various literature sources was done by following agreed and high quality requirements. In addition, the results shown in this study successfully cover and answer the research questions. Therefore, the information presented is very detailed and can serve as a reference source for future research. In addition, there were limitations and obstacles encountered during the study, including the difficulty in finding suitable literature sources, and the selection process took a lot of time.

Future Research Directions

This study is sustainable, which means that it still needs to be developed in the future, this can also be seen from the ascending graph shown in the literature source search database such as SCOPUS. Future studies may be able to examine more time spans, because this study only examines the implementation of environmental education programs between 2018-2024. It is also necessary to add articles used in the research, and need to be selected more specifically. In addition, future research can continue the gaps that exist in this study. These gaps can be in the form of the development of the Adiwiyata program, which in this study has not been studied in great depth. In addition, future research can examine more about learning strategies that are more impressive and of course adapted to the needs of society in the future.

Conclusion

This systematic review presents information related to greening the science classroom which includes a discussion of the implementation of environmental education with a more specific discussion of the barriers to implementation. Challenges and barriers can include a lack of resources such as money and teaching infrastructure. Barriers can also stem from a lack of training for teachers. And a crucial obstacle can also come from the development of a

curriculum that is still not optimally used to teach environmental education materials. In addition, this study also features programs and pedagogies that can be used during the implementation of environmental education. The pedagogy displayed is quite diverse ranging from those that can be implemented indoors, outdoors and even online. And this study also features one of the greening school programs implemented in Indonesia, namely the Adiwiyata program. Greening classroom that leads to environmental education is needed now and will continue to be studied for a sustainable future. The results of the review and assessment of various literature reviews are summarized in this study which are relevant to greening classrooms and environmental education. So that from the information contained in this study can be knowledge of the picture to face the present and the future.

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A DECADE BIBLIOMETRIC ANALYSIS OF TECHNOLOGY-MEDIATED TEACHING AND LEARNING OF ENGLISH-SPEAKING SKILLS

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Abstract: *This bibliometric study offers a comprehensive overview of the Technology-Mediated English Language Skills Teaching and Learning research landscape, including publication trends, country contributions and collaborations, prolific authors and journals, and key topics of interest. Through a comprehensive review of 209 documents retrieved from the Scopus database from 2014-2023 using VOSviewer, Excel, and Tableau, this research reveals a significant increase in Technology-mediated publications in the teaching and learning process since 2021, with the United States, China, and Malaysia as a leading contributor and collaborator. The study further identified the most prolific authors and journals and highlighted six key topics: e-learning, communication skills, computer-assisted teaching, pandemic, speech recognition, and teaching. This research also carries valuable implications for practitioners, researchers, teachers, and students to give more importance to this field to advance further research on technological media in the context of English-speaking skills.*

Keywords: *Bibliometric, Technology Mediated in Teaching and Learning, English-speaking skills, Country Contributions and Collaboration, Key Topics of Interest, Productive Authors and Journals, Publication Trends, and Research Landscape*

Introduction

The use of technology in language education has become increasingly popular in recent years. Rajendran and Yunus (2021) stated that the 21st century requires people to be proficient in English to become global players, and one of the skills highlighted is speaking skills. Teaching and learning speaking skills through technology involves using digital tools and platforms to facilitate the development of oral communication skills. Amanda and Tambusai (2023) viewed it as one possible way to help students learn speaking skills practically and flexibly. Over the last three decades, much debate has been about using technology in language learning (Şahin Kızıllı, 2017), especially in speaking skills. Emerging examples of technology-mediated teaching and learning include technology-supported language learning activities, such as task-based language teaching (TBLT), technology-mediated language learning, and experiential learning mediated through advanced information technologies (Mayer & Schwemmler, 2023). This approach is proven to improve learners' speaking skills, as evidenced by research reporting improvements in learners' speaking skills after engaging in technology-mediated language learning activities (Chen & Tzu-Ching, 2019). Another study evaluated how technology-mediated learning helps English language learners improve their speaking skills and found that

technology-mediated language learning activities can effectively improve learners' speaking abilities (Iqra Mahmood, Memon, & Qureshi, 2023).

Problem Statement

Despite increasing interest in technology-mediated teaching and learning of speaking skills, comprehensive bibliometric analysis research in this area is still lacking. Therefore, it is necessary to conduct a bibliometric analysis of technology-mediated English language skills teaching and learning research to identify trends, gaps, and future directions for the field.

Aim/Objective of The Paper

Therefore, the main aim of this paper is to conduct a bibliometric analysis of research on technology-mediated teaching and learning of English language skills over the last decade. This research aims to contribute to visualising the scientific landscape of a particular field by illustrating publication trends, country contributions and collaborations, prolific authors and journals, and the main topics of interest in this particular field. The specific research questions are as follows:

Research Questions

1. What technology-mediated trends in teaching and learning of speaking skills have been published over the last decade?
2. What is the country's contribution and collaboration in technology-mediated teaching and learning of speaking skills?
3. Which authors and journals have contributed the greatest to technology-mediated research in teaching and learning speaking skills?
4. What are the most common and recurring themes explored in studies focusing on technology-mediated speaking skills learning?

This article is organised as follows: The next section is a literature review on technology-mediated teaching and learning of speaking skills, a review of previous studies, and results in the field. The following section explains the research design and bibliometric analysis techniques used in this study and explains the literature selection criteria, data extraction procedures, and leading bibliometric indicators. To answer each research question, the following section presents the results of the bibliometric analysis. It continues with a discussion that interprets the results in the context of the existing literature. The conclusion summarises the main insights drawn from the bibliometric analysis, emphasising its relevance to the state of technology-mediated teaching and learning of speaking skills over the past decade. Additionally, this chapter discusses the study's limitations and suggests directions for future research in this dynamic and evolving field. This paper aims to contribute to existing knowledge by offering a comprehensive bibliometric analysis of technology-mediated teaching and learning of English-speaking skills.

Literature Review

This literature review aims to provide an overview of the last decade of research on technology-mediated teaching and learning of English language skills. This review attempts to comprehensively explain the research topic by focusing on bibliometric analysis and previous research.

Technology Integration in Language Education

Technology integration in language education refers to the use of technology as a medium to improve language teaching and learning. Technology integration in language education has been proven to provide many benefits. According to Ritaningrum (2021), a technology integration study highlights the importance of technology integration in language education, including speaking skills. In addition, research by Izzah, et al. (2014) found that technology integration in language education can be improved through a communicative approach, emphasising the use of language in real-life situations. This is also very useful for developing speaking skills. Apart from that, Cabrera, Ulehlova, & Espinoza (2017) found that integrating technology into language education can develop novice teachers to increase their confidence in teaching digitally. Based on those studies, it can be seen that technology integration in language education can potentially improve language teaching and learning.

Bibliometric Analysis

Bibliometric analysis has become helpful in understanding trends and the scientific landscape within a particular field. Donthu, Kumar, Mukherjee, Pandey, and Lim (2021) stated that by making sense of large amounts of tightly structured unstructured data, bibliometric analysis helps decipher and map summaries of scientific knowledge and nuances of the evolution of existing fields. As a result, a well-conducted bibliometric study can build a solid foundation for developing a new and meaningful field. This enables and empowers students to (1) gain a thorough understanding, (2) discover knowledge gaps, (3) acquire new ideas for investment, and (4) make contributions to the field. Leydesdorff and Vaughan (2006) explained how vital bibliometrics is for mapping intellectual structure.

Further, Waltman and Van Eck (2013) discussed how bibliometrics can be used to discover new themes and necessary educational research. Recent years have seen methodological advances in bibliometric analysis, offering new insights into research patterns and the dissemination of knowledge. In addition, Van Raan (2017) introduced the "citation proximity analysis", which allows for a more nuanced understanding of the intellectual structure of a field.

There have been many bibliometric studies that discuss technology-mediated language learning, for example, Hou and Zhonggen (2023), with their research entitled A Bibliometric Analysis of Synchronous Computer-Mediated Communication in Language Learning Using VOSviewer and CitNetExplorer. The findings from their study reveal the authors, sources, organisations, and regions presented in the table, which indicate that scholars in this field are primarily located in the United States and China. These findings also indicate that intercultural competence, social presence, and corrective feedback all play essential roles in synchronous

computer-mediated communication-based language learning and are all interdependent. (Shen & Ho, 2020) A bibliometric analysis was also researched, which examines the scientific metric analysis of research articles to explore the development of technology-enhanced learning in higher education. Next, Rodriguez, Prieto, and Alonso-Gracia (2019) examine Technology and Higher Education: A Bibliometric Analysis. The results indicate that there has been a significant increase in publications on this subject in recent years, and as evident from the current peak, this is a growing trend that will lead to more research in the coming years. Apart from that, Jing, Wang, Chen, Shen, and Shadieff (2024), with the title A bibliometric analysis of studies on technology-supported learning environments: Hot topics and frontier evolution, found that technology-supported learning environment research is in a growth phase, with core journals such as Interactive Learning Environments or Computers & Education. And many more bibliometric studies have been carried out.

Despite growing interest in technology-mediated language teaching, there remains a significant gap in the literature. Johnson (2019) pointed out the lack of comprehensive studies examining the long-term impact of technology integration on English language skills, especially speaking skills. Therefore, this literature review provides the foundation for our decade-long bibliometric analysis of technology-mediated teaching and learning of English language skills. By synthesising past studies, we establish context, identify gaps, and acknowledge methodological advances that will inform our exploration of the scientific landscape in this evolving field.

Methodology

This research uses bibliometric analysis to trace developments in technology-mediated teaching and learning of speaking skills. The bibliometric analysis uses quantitative metrics to graphically analyse large numbers of documents published in a particular research field (Baker, Kumar, & Pandey, 2020), including bibliographic aggregation, co-occurrence of keywords, co-authorship networks, and co-citations (Van Eck & Waltman, 2014). Bibliometric methods, which are increasingly used to assess research performance, can be used to quantitatively assess an unlimited number of publications while making claims about qualitative features (Wallin, 2005). The research methodology section includes database selection, search criteria, data collection, and data analysis methods.

Database Selection

Researchers chose the Scopus database as the primary source for this research. This database offers a variety of functions, including source title, document type, author and affiliation, and keywords, among others, making it suitable for conducting bibliometric analysis (Sweileh, Al-Jabi, Sawalha, & Zyoud, 2016). Since this research focuses on technology-mediated teaching and learning of speaking skills, bibliometric analysis based on the Scopus database is expected to produce reliable and valuable insights.

Search Criteria

A comprehensive search string was developed to explore the concept of technology-mediated teaching and learning of English-speaking skills. It has two keywords, "Technology-mediated

in teaching and learning" and "speaking skills," and their synonyms. Finally, the search queries for "Technology-Mediated in Teaching and Learning" are ("Technology-mediated teaching" OR "Technology-mediated Language Learning (TMLL)" OR "Digital Language Learning" OR "Digital Education" OR "Technology Integration" OR "Multimedia Pedagogy" OR "E-Learning" OR "Online English Instruction" OR "Computer-Assisted Language Learning (CALL)" OR "Mobile-Assisted Language Learning (MALL)" OR "Technology-mediated language learning" OR "Technology in Language Education" OR "Technology-Enhanced Learning" OR "Pedagogical Technology" OR "Digital Pedagogy" OR "Technological Advances in Language Education" OR "Technological Impact" OR "Multimedia Language Instruction" OR "Media-enhanced English Learning" OR "E-learning and speaking proficiency" OR "Language Learning Platforms" OR "Technological Advancements" OR "Technology Integration in Language Learning" OR "Social media for language learning" OR "EdTech (Educational Technology)" OR "Digital Literacy" OR "Blended Learning" OR "LMS (Learning Management System)" OR "Mobile Learning (M-Learning)" OR "Gamification" OR "Virtual Classroom" OR "Synchronous Learning" OR "Asynchronous Learning" OR "Augmented Reality (AR)" OR "Virtual Reality (VR)" OR "MOOCs (Massive Open Online Courses)" OR "Flipped classroom") Furthermore, to broaden the scope of the search and include all relevant publications, additional synonym expressions associated with Speaking skills context, including "Speaking Skills" OR "Oral Proficiency" OR "Speaking competence" OR "Speaking ability" OR "Speaking accuracy" OR "Speaking Fluency" OR "Oral proficiency" OR "Communication skills" OR "Speaking proficiency" OR "Speech production" OR "Spoken language" OR "Articulation skills" OR "Communicative competence" OR "Communicative competition" OR "Oral communication skill".

Data Collection

Data extraction was carried out on February 13, 2024. This research also used the guidelines set by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher, Liberati, Tetzlaff, & Altman, 2009), which is widely known among the academic community to ensure the accuracy and relevance of the data collected. A strict screening process is implemented following these guidelines. Figure 1 presents a visual representation of the sequential stages of collecting data for analysis.

In the first stage, data searches using keyword strings without filtering for years resulted in identifying up to 1730 publications based on the search strategy described in the previous section. In the next filtering stage, the search criteria were limited to documents published between 2014 and 2023. In addition, it was filtered again to only documents in the form of articles and English. As a result of this filtering process, a total of 1035 documents were removed from the data set. Furthermore, a comprehensive manual review was carried out on the remaining 695 documents to ensure the suitability of the documents to be analysed. This review involved evaluating the title and abstract to determine their relevance to the subject of technology-mediated teaching and learning of English-speaking skills. As a result, 486 documents were excluded because they did not focus on the context of speaking skills. After the screening stage, 209 documents were determined to be relevant and selected for further analysis.

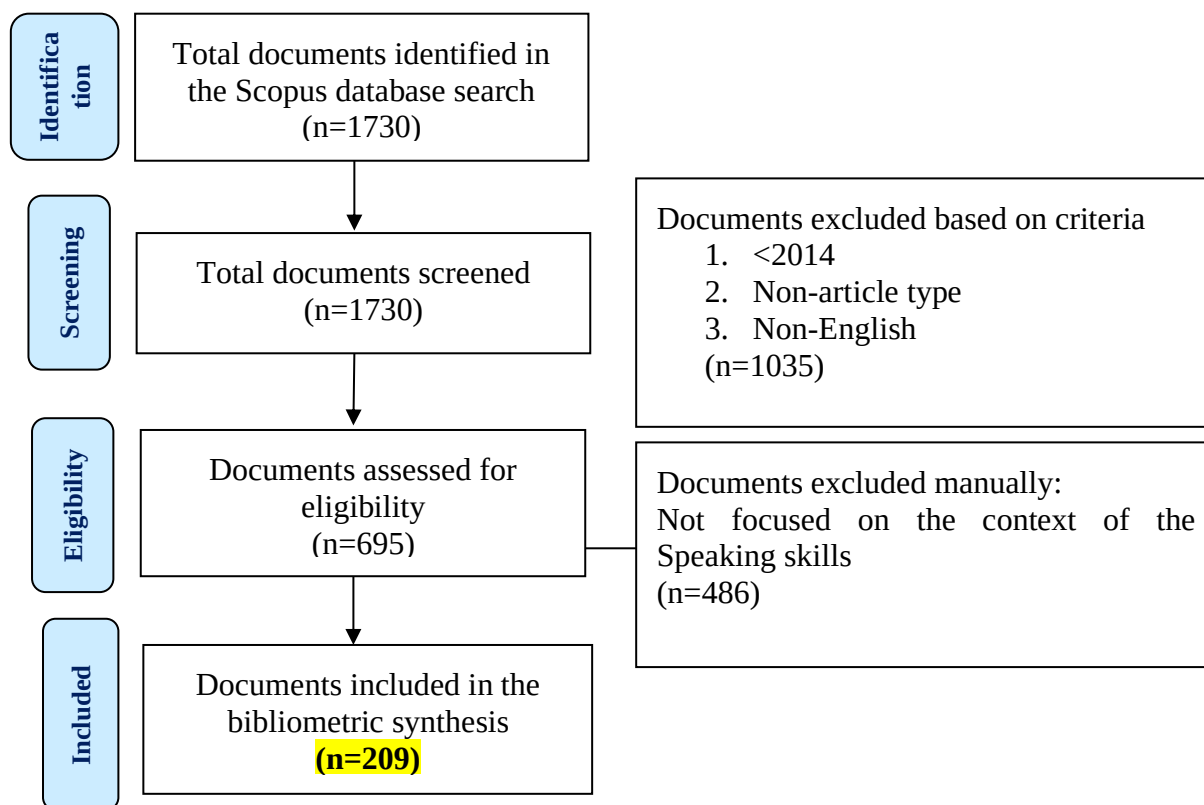


Figure 1. PRISMA Flowchart of Document Identification

Data Analysis Method

This research uses bibliometric analysis as a data analysis method to determine research performance in mediated technology in English language learning and teaching. This bibliometric analysis aims to provide a valuable understanding of publication trends, contributions, and collaborations by countries, key authors, journals, and essential topics in the field. The application used is VOSviewer, which is a computational software package recognised for its ability to build maps and visualise bibliometric networks based on co-occurrence matrices (Van Eck & Waltman, 2010). Tableau and Microsoft Excel were also used to display results. More specifically, publication trends related to this specific domain are explained using data taken from the Scopus database. To visually represent the annual number of publications, a graph was created using Microsoft Excel 2021.

Additionally, a world map was created using Tableau 2023.3 to capture the geographic distribution of publications. In addition, to visualise the collaborative network between countries, VOSviewer 1.6.20 software was used to create a network visualisation map. Moreover, using bibliometric data extracted from VOSviewer 1.6.20, Microsoft Excel 2021 compiled a list of the most prolific authors and journals. In addition, relevant information such as total citations, total publications, Sitescore 2023, h-index, and publisher are included in the analysis for a more comprehensive understanding. Finally, a network visualisation map of co-occurring keywords to identify the research focus was generated using VOSviewer 1.6.20. This

analysis helps reveal the interconnections and relationships between keywords in the research literature.

After this careful process, 74 keywords were identified from the initial set of 1315 while organising. The minimum occurrence of a keyword is 5. Table 1 presents the primary data from the collected data set, consisting of 209 documents from 138 sources published between 2014 and 2023. The analysis reveals that 676 authors, spread across 61 countries, have contributed to this research area under investigation. In addition, a total of 1315 different author keywords were identified.

Table 1. Critical Data from The Data Set

Description of the Key Data	Results
Time	2014-2023
Total documents	209
Sources	138
Countries	61
Authors	676
Author keywords	1315

Results

Using bibliometric analysis, this research involved a thorough analysis of 209 documents from the Scopus database that were published in the last decade. The complete analysis is presented in the following sub-chapter.

Technology-Mediated Research Publication Trends in Teaching and Learning in The Context of English-Speaking Skills.

The performance of Technology-mediated research in teaching and learning in the context of English-speaking skills is revealed through an evaluation of the annual distribution of published documents. Figure 2 visually presents the results of publications, showing the increasing level of publication output from 2014 to 2023. A significant spike in publications was seen in 2021, with a total of 34; in 2022, it became 40, until the highest in 2023, with 52 publications. It should be emphasised that the number of publications in 2023 shows an increase of about 13 times compared to the number of publications in 2014, which shows a considerable trend in developing works on this topic over time.

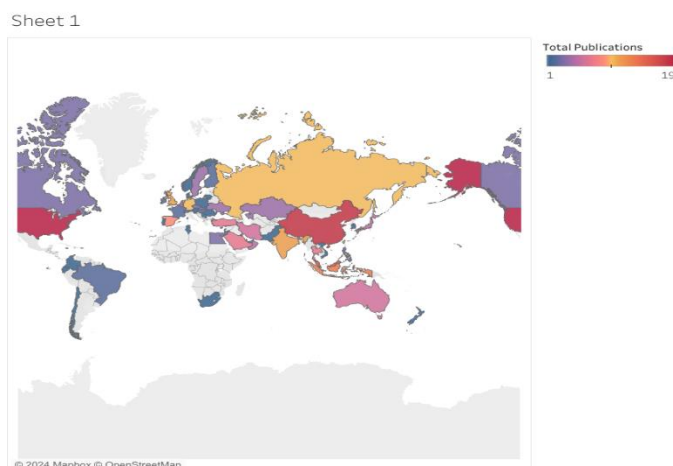


Figure 2. Publication Trend Between 2014-2023

Country Contribution and Collaboration

Tableau creates a geographic distribution of publications by country. The results show that a total of 61 countries have contributed to this area of research. The ten countries with the most publications in this research are the United States with 19 publications, then China with 18 publications, Malaysia with 16 publications, Indonesia with 13 publications, India with 11, the United Kingdom with 11, Germany with 10, The Russian Federation with 10, Taiwan 10, and Spain 9 publications. Figure 3 visually depicts these findings, clearly showing that a large number of publications originate from Asian countries. Even so, the United States represents the European continent with the most publications.

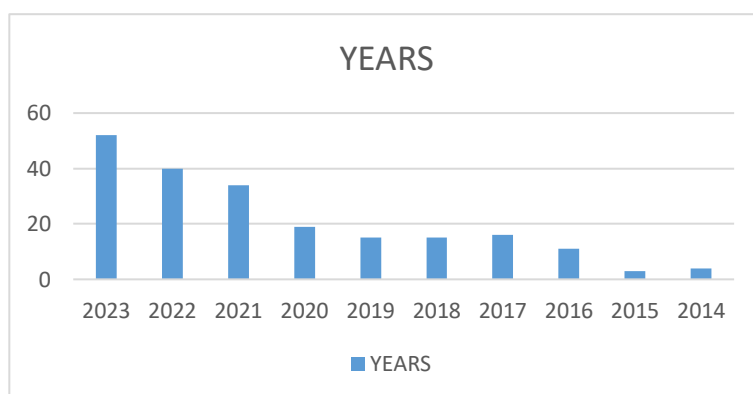


Figure 3 Geographical Distribution of Publications by Country

The country collaboration network was generated using VOSviewer, where data collected from the export of Scopus documents to CSV shows 63 countries and 43 countries are not connected to other countries in terms of collaboration and are therefore not represented on the map. The VOSviewer application shows 12 clusters differentiated by colour, which shows significant international collaboration in technology-mediated research in teaching and learning in the context of English-speaking skills. The most extensive cluster, represented in red, includes three countries (namely China, Hong Kong, and India). The second cluster contains three

countries (Malaysia, Oman, and Saudi Arabia). The third cluster contains two countries (Australia and Germany). The fifth cluster contains two countries (Taiwan and the United Kingdom). The sixth cluster contains two countries (Japan and the United States). The seventh to twelfth cluster each consists of one country, namely Indonesia, Iran, the Russian Federation, Spain, Thailand, and Turkey. 20 of the 63 countries are interconnected with the 19-total links. Based on the network visualisation in Vosviewer, China is the highest country in its collaboration on research on the topic of technology-mediated teaching and learning in the context of English-speaking skills. Moreover, In the overlay visualisation, China also appears to be a country that has recently produced publications on this topic.

Most Productive Authors and Journals

From 2013 to 2023, a total of 676 authors contributed to the research field of technology-mediated teaching and learning in the context of English-speaking skills. Based on the data presented in Table 2, there are ten authors with the highest total publications. Altogether, they produced two publications each on this topic. Yunus, MM emerged as the most productive author with 232 publications. Then there were Shorey, Shefaly, Shadiev, Rustam, Lahiri, Uttama, Ang, and Neo Kim Emily, who were listed as prolific writers affiliated with the Asian continent. Concerning citation metrics, Bouchard Stéphane garnered the highest number of citations among the ten authors, with a total of 5,941 citations. He was also the author who produced the earliest publications from 1933 to 2023.

Table 2. Top Ten Productive Authors

Author's Name	ID	Year of first publications	Affiliation	Country	TP	TC	<i>h</i>
Yunus, MM	57218893299	2007	Universitas Kebangsaan Malaysia , Bangi	Malaysia	232	2590	21
Shorey, Shefaly Y.	55913700600	2014	NUS Yong Loo Lin	Singapore	212	4002	34
Bouchard, Stéphane	7006810892	1933	Université du Québec en Outaouais , Gatineau	Kanada	207	5.941	41
Shadiev, Rustam	24825659700	2008	Universitas Zhejiang, Hangzhou	China	150	2323	28
Lahiri, Uttama	35119157400	2005	Institut Teknologi India Gandhinagar	India	92	1164	17
Ang, Neo Kim Emily	23099412200	2007	National University Health System	Singapore	83	1994	27
Laborda, Jesús García	57223272843	2007	Universidad de Alcalá	Spanyol	60	327	9
Morsomme, Dominique	19035550000	1993	Université de Liège , Liege	Belgia	53	701	15
Hussin, Supyan	36761044000	2010	Universitas Kebangsaan Malaysia	Malaysia	43	350	10
Peñalver, Elena Alcalde	57160934600	2014	Universidad de Alcalá	Spanyol	37	57	4

Note: *TP* = Total Publications, *TC* = Total Citations, *h* = *h* index

Table 3 presents the top 10 most productive journals from a total of 138 journals analysed. The journal with the highest publications is the Sustainability (Switzerland) journal, with a total of 13,531 publications in 2023, followed by the Education Sciences journal and the Education and Information Technologies journal. All journals that appear in Table 3 are journals that are actively producing in 2023, and the results of analysis on the Scopus database show that these ten journals produced more than three special publications on the topic of Technology-mediated teaching and learning in the context of English-speaking skills.

Table 3. Top Ten Productive Journals

Rank	Journal	TP (%)	TC	CiteScore 2023	The most cited article(references)	Times Cited
1	Sustainability (Switzerland)	13531	370077	6.8	N/A	N/A
2	Education Sciences	1251	15418	4.6	What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature	146
3	Education and Information Technologies	1187	17007	9.6	Interacting with educational chatbots: A systematic review	105
4	BMC Medical Education	989	14145	4.8	Revolutionising healthcare: the role of artificial intelligence in clinical practice	13
5	World Journal of English Language	395	319	0.5	Attachment Anxiety and Covert Narcissistic Pangs as Reflected in Tennessee William's The Glass Menagerie	3
6	International Journal of Learning, Teaching and Educational Research	334	2193	2.1	Embedding Sustainable Development Goals to Support Curriculum Merdeka Using Projects in Biotechnology	5
7	International Journal of Emerging Technologies in Learning	289	9056	5.0	Enhancement of Online Education in Engineering College Based on Mobile Wireless Communication Networks and IOT	38
8	International Journal of Information and Education Technology	242	1821	2.7	Applying Gamification Technique and Virtual Reality for Prehistoric Learning toward the Metaverse	8
9	International Journal of Instruction	183	4109	4.3	The Impact of Inquiry Collaboration Project-Based Learning Model of Indonesian Language Course Achievement	5
10	Computers and Education	163	20040	26.5	Effects of artificial Intelligence-Enabled personalised recommendations on learners' learning engagement, motivation, and outcomes in a flipped classroom	43

Note: TP = Total Publications, TC = Total Citations.

Key topics of interest

Keyword analysis is a valuable tool for researchers who wish to identify emerging trends in a particular scientific field (Guo, Xu, Feng, & Zhang, 2016). In this study, author co-occurrence keywords were used as the primary unit of analysis in the bibliometric investigation, with VOSviewer used to identify emerging areas of research interest. Of the total of 1315 keywords analysed, 74 keywords appeared to meet the specified inclusion threshold, with a minimum of five occurrences. However, 6 of them were excluded from the list analysed because they did not match the topic. As seen in Figure 5. Based on the size of the nodes, the top 10 keywords most frequently used in technology-mediated learning research in the context of English language skills were identified. The most prominent keywords include "e-learning" with 58 occurrences, "students" with 33 occurrences, "people and humans" with 32 and 31 occurrences, "Teaching" with 29 occurrences, "communication" with 28 occurrences, "skills communicate" with 27 incidents, "Interpersonal communication" with 22 incidents, "blended-learning" with 22 incidents, and "Virtual reality" with 19 incidents. These findings suggest that e-learning, communication, and teaching are key focus areas in technology-mediated research in the context of English language skills.

The identified set of keywords was systematically categorised into three different groups represented by different colours, each representing a specific research topic. The largest cluster, depicted in red, includes 41 keywords, including "e-learning", "communication skills", "speaking skills", "virtual reality", etc. This highlights the central theme of this research as technology-mediated effectiveness in teaching and learning. The green cluster, consisting of 20 keywords such as "curriculum," "people," and "problem-based learning," centres on the relationship of strategies and objects to technology-mediated teaching and learning. The blue cluster, with seven keywords including "Teaching", "students", and "education", is the link between the teaching object and the teaching media. The keywords identified recently by research are "artificial intelligence", "gamification", "augmented reality", and "mobile learning".

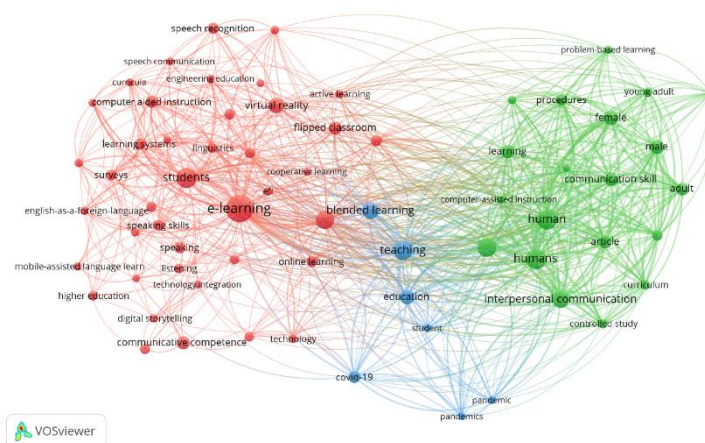


Figure 4. Co-Occurrence Network of Author Keywords (Occurrence Threshold ≥ 5)

Discussion

The findings obtained through bibliometric analysis offer significant insight into the state of technology-mediated research in teaching and learning in the context of English-speaking skills over the last ten years.

Trends in Technology-Mediated in Teaching and Learning Research Publications in English-Speaking Skills Contexts

In terms of publication pathways, the findings of this research show a continuous and substantial increase in the number of documents related to technology-mediated teaching and learning in the context of English-speaking skills between 2021 and 2023. This observation is in line with previous research showing increasing academic interest in the integration of technology-based learning in English education (Hariadi & Simanjutak, 2020). The recent surge in the application of technology in teaching and learning speaking skills can be attributed to rapid technological advances. However, the main reason behind this substantial increase since 2021 may be related to the post-COVID-19 pandemic, which necessitated the widespread implementation of digital transformation during the pandemic. It is recognised that technology has the potential to revolutionise traditional approaches to English language teaching and learning. It is possible that the trend of publications about technology as a language learning medium will increase every year, considering that technology in the current era is increasingly sophisticated and diverse.

Country Contributions and Collaborations

The results of this research show that the United States represents the American continent with the most publications. Apart from that, China, Malaysia, and Indonesia, as three Asian countries, have made significant contributions and collaborations in the field of technology-mediated research in teaching and learning, especially in the context of speaking skills. These findings are consistent with the statements of Rahim and Sandaran (2021), who highlight the increasing importance of technology in Asian countries and its impact on English language teaching and learning. Additionally, the findings of this research reveal that academics from Asian countries demonstrate a higher level of commitment towards exchanging ideas and sharing best practices regarding technological advancements, especially amidst the ongoing global pandemic. These results are in line with previous research conducted by Hwang and Fu (2019), which supports the idea that scholars from Asia show a higher level of interest in technology as a learning medium compared to their counterparts from other regions. Therefore, it can be said that fostering international collaboration and encouraging knowledge exchange among Asian scholars will make a significant contribution to technological progress and development on a global scale.

Most Productive Authors and Journals

Regarding authors who have demonstrated extraordinary productivity, it is worth highlighting that 6 of the 10 authors with the highest levels of journal production are affiliated with academics on the Asian continent, like Yunus, MM, who comes from Malaysia, and Shorey, Shafaly Y. from Singapore. Moreover, their publications have garnered a considerable number of citations in the scientific community. These results underline the outstanding contribution

and impact of Asian scholars in the field of technology as a learning medium, especially in the context of English-speaking skills.

In addition, the results obtained from the bibliometric analysis show that *Sustainability* (Switzerland) and *Education Sciences* are the most productive journals in the field of technology-mediated research in teaching and learning in the context of English-speaking skills. These findings suggest that these journals have recognised the importance of specific research domains and have facilitated a platform for scholars to publish their scientific contributions. Additionally, it is essential to highlight that most of the leading journals identified in this study have total publications of over a thousand in just 2023 and total citations in the tens of thousands. This shows that these journals have a significant influence on the work of writers from all over the world on various topics, specifically technology in English language learning.

Key Topics of Interest

The current investigation used keyword co-occurrence analysis to distinguish the main research themes prevalent in the e-learning research domain in the EFL context from 2014 to 2023. Through this analysis, six main topics of interest emerged, namely "e-learning", "communication skills", "computer-aided instruction", "pandemic", "Speech recognition" and "teaching." These findings show that the themes of "e-learning", "communication skills", and "teaching", especially in the pandemic era, continue to receive great scientific attention both in the broader field of e-learning research and especially in the context of technology as a medium for learning speaking skills. English.

Several studies have focused on evaluating the effectiveness of new technological tools used in teaching and learning English-speaking skills. Other important research areas are cooperative learning, problem-based learning, and blended learning, and the flipped classroom has emerged as a strategy that is in line with valuable technological media such as gamification, artificial intelligence, virtual reality, augmented reality, digital storytelling, etc. facilitating more straightforward access to learning English-speaking skills. Speaking skills encourage creative learning, especially in the EFL area, to take advantage of emerging technologies. There is no doubt that the emergence of the COVID-19 pandemic has brought unprecedented challenges to education across the world. They were starting with online learning, which then requires all educational elements, including teachers and students, to utilise technology so that learning continues even remotely. This fact has received a lot of attention in the academic literature, where academics have been involved in extensive discussions to gain broader insight into the integration of technology as a learning medium.

Discussion of Related Works

This bibliometric study provides a comprehensive overview of the research landscape regarding technology-mediated teaching and learning in the context of English-speaking skills, offering a more comprehensive perspective than previous review studies. Previous research also exists on bibliometric analysis of ten years of e-learning focused on EFL (Feifei Chen, Zhejiang Yuexiu University, China). And there are many other studies on technology-mediated language learning. Although previous research has provided valuable insights, its scope is still

limited, resulting in a fragmented understanding of technology-mediated teaching and learning that focuses on speaking skills. In contrast, this bibliometric analysis not only covers these topics but also offers a broader perspective on research trends in this field. In addition, many studies have used quantitative methods to explore technology as a learning and teaching medium in various educational fields, such as health sciences education, higher education during the COVID-19 pandemic, and the intersection between technology as a learning medium. Based on the initial search database, which has focused on the search string, there are still many other academic fields regarding communication skills using technological media. Still, they do not focus on English-speaking skills. Only a few specifically focus on the context of English-speaking skills. In response to this gap, this research provides a comprehensive view of the field, covering publication trends, country contributions and collaborations, prolific authors and journals, and critical topics of interest, serving as a valuable guide for newcomers interested in conducting research in this field. The findings of this research have significant implications for various stakeholders in the field of language teaching, especially English-speaking skills, including practitioners, researchers, teachers, and students. For researchers, it is crucial to continue to carry out in-depth empirical investigations in various research fields related to technology-mediated teaching and learning. This includes examining the specific effectiveness of technological media and exploring new technological challenges and opportunities, including exploring emerging themes to broaden the scope of the research. By using more effective technological media and conducting further research, the field of English-speaking skills can improve quality language education outcomes.

Limitation

Although this research method was carried out very carefully and used all quantitative analysis, several problems need to be considered. One of the limitations is related to the choice of the Scopus database as the only data source. Although Scopus is considered the largest and most diverse database with broad document coverage across various disciplines, certain vital documents may be excluded, which could influence the findings. Another limitation concerns the criteria used to collect these documents. This research is limited to articles that have undergone peer review and only those in English. As a result, excellent conference papers, book chapters, or articles in languages other than English that could provide important insights into research trends and the boundaries of research fields on this topic may have been overlooked in the analysed references.

Conclusion

Through bibliometric analysis of 209 documents taken from the Scopus database from 2014 to 2023, this research offers a comprehensive overview of technology-mediated teaching and learning research on English-speaking skills. The main findings of this investigation are summarised as follows. First of all, over the last decade, a consistent level of publication output has been observed in the field of technology-mediated teaching and learning of English-speaking skills. Notably, there was a significant increase in the number of publications from 2021 to 2023, indicating a substantial increase in research activity over the past three years post-pandemic. Additionally, the United States, China, and Malaysia have emerged as prominent contributors and collaborators in this field, indicating significant engagement and partnerships in conducting research in this area.

Additionally, among the identified authors, Shorey, Shefaly, Bouchard, Stéphane, Shadiey, Rustam, Lahiri, Uttama, Ang, and Neo stand out as the most prolific contributors to this field. Regarding leading journals, the Sustainability (Switzerland) journal, the Education Sciences journal, and the Education and Information Technologies journal have been identified as the most productive journals in the domain. Finally, co-occurrence keyword analysis revealed six main themes, namely "e-learning", "communication skills", "computer-aided instruction", "pandemic," "Speech recognition" and "teaching".

Apart from contributing to general knowledge about hotspots and limitations of literature in the landscape of Technology-mediated teaching and learning on English-speaking skills, this research also brings valuable implications for practitioners, researchers, teachers, and students to give more importance to this field. To advance future research in the context of English-speaking skills, it is recommended to study the specific aspects of technology as a learning medium more deeply. This includes examining the specific effectiveness of technological media and exploring the challenges and opportunities of new technologies, including exploring emerging themes to broaden the scope of the research. All language education stakeholders need to collaborate to optimise technology as a learning medium, especially in learning English-speaking skills from various interdisciplinary fields.

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SYSTEMATIC LITERATURE REVIEW: THE EFFECT OF E-MODULE ON STUDENT SCIENCE LEARNING OUTCOMES

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Abstract: *E-modules are multimedia-based learning media modules that involve video, audio, images and text. Currently, e-modules are widely used in the learning process at school. This study aims to determine the effect of e-modules on students' science learning outcomes. The method used is a systematic literature review. Several journal requirements were used that met the inclusion criteria, namely journals with publications in the last 5 years, indexed by SINTA or Scopus, experimental research types and covering the scope of science. The results showed that 8 journals met the inclusion and exclusion criteria after going through the search stage and summarized in the form of PRISMA. Based on the review of the 8 articles, it was found that the application of e-modules in learning has a positive effect and significantly improves student science learning outcomes (cognitive, affective, and psychomotor skills) and student learning motivation. Therefore, it can be concluded that e-modules have a positive effect on students' science learning outcomes.*

Keywords: *SLR, E-module, Science Learning outcomes, Effect*

Introduction

Learning media is a very important means of supporting learning to produce more meaningful and interesting learning. The attractiveness of a learning media in presenting material will indirectly increase students' interest in learning. Material that is easy to understand and understand is material that is packaged interestingly and is able to increase one's interest in learning it (Dwijayani, 2019; Nazmi, 2017). Learning media in the current 2.0 era has evolved from traditional learning to technology-based learning as a form of development of the times. Learning media is an integral part of the learning system, so the media used in learning must follow the advancement of technology and information, so that students can have skills in their day (Arikunto 2006). However, in the process of applying this technology-based learning media, the role of the teacher is needed. The teacher will be the first person who must be able to operate the technology-based learning media to be able to form student skills. The teacher's effort to build high student skills in responding to the challenges of globalization today is to use information technology media in learning (Abdul Labib et al. 2019).

One of the technology-based learning media that is currently often used is e-modules. E-modules or electronic modules are electronic textbooks designed by teachers with the aim that students can learn independently brought by teacher guidance systematically (Hunaidah, Erniwati, and Mahdiannur 2022). E-modules can help improve students' understanding of the material. With supporting e-module features such as presenting material in the form of text, images, audio, and video, it can optimize learning and encourage students to better understand learning material (Qotimah and Mulyadi 2021).

In its application, e-modules have an influence on student learning outcomes, especially in science learning. Science is a branch of science that requires the help of learning media to visualize the material (Dhaniawaty, Suci, and Hardiyana 2021). Several e-module development and experimentation studies have been conducted and tested their effect on student learning outcomes, both cognitive learning outcomes and student motivation and interest. Based on the results of research conducted by Hunaidah et.al, it shows that the consistent application of the CinQASE E-Module in physics subjects in grade 10 high schools can improve student learning outcomes (Hunaidah et al. 2022).

In addition, in a similar study conducted by Samala et al, which said that the use of interactive e-modules in online and offline learning can make it easier for students to understand the learning material which then has an impact on student learning outcomes that increase (Samala et al. 2022). In line with recent research conducted by Sulisetijono et.al, with the research title "The Effectiveness of AR e-module of Flower Structure Material on iology Students' Science Literacy" shows that the application of AR e-modules is significantly effective in improving students' literacy skills. Based on the data from previous research, the purpose of this study is to determine the effect of using e-modules on students' science learning outcomes (Sulisetijono, Sunarmi, and Rochmah 2023).

Method

This type of research is a Sytematic Literature Review (SLR). SLR is a research literature review method that identifies, assesses, and interprets findings on a research topic to answer researcher questions (Aliyah and Mulawarman 2020). This research contains a Research Question (RQ) as an initial basis for searching and collecting research data. The Research question (RQ) of this research are:

1. Does e-module affect students' science learning outcomes?
2. How does e-module influence students' science learning outcomes?
3. What science learning outcomes can be improved with e-modules?

The data used by researchers were sourced from search results through "Google Scholer" and "Eric" using the keywords "E-modules" OR "Learning Science outcomes" OR "Cognitive science outcomes", hundreds of articles were obtained. However, after going through the article screening process, 8 articles were selected that met the inclusion and exclusion criteria. The selection and rejection of articles based on the inclusion and exclusion criteria are described in the following table:

Table 1: Exclusion and Inclusion Criteria

Criteria	Description
Inclusion criteria	- Articles with a publication period of 2019-2023 - Indexed by "SINTA" journals (S1-S3) for articles published by Indonesian journals and indexed by "Scopus" for articles from international journals. - Using experimental research methods - Contains topics related to e-modules and student science learning outcomes
Exclusion criteria	- Articles with a publication period below 2019 - Not indexed by "SINTA" and "Scopus" - Does not use experimental research methods - The topic not related to science concept

Selection of articles that meet the inclusion and exclusion criteria in this study was carried out by screening articles using the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). There are several steps that are carried out with the PRISMA method, namely formulating (identification), searching for literature systematically (screening), filtering or selecting articles that are considered according to the researcher's title (eligibility) and analyzing articles that have been selected (included) (Zarate et al. 2022). The following PRISMA diagram shows the flow of the research data screening process

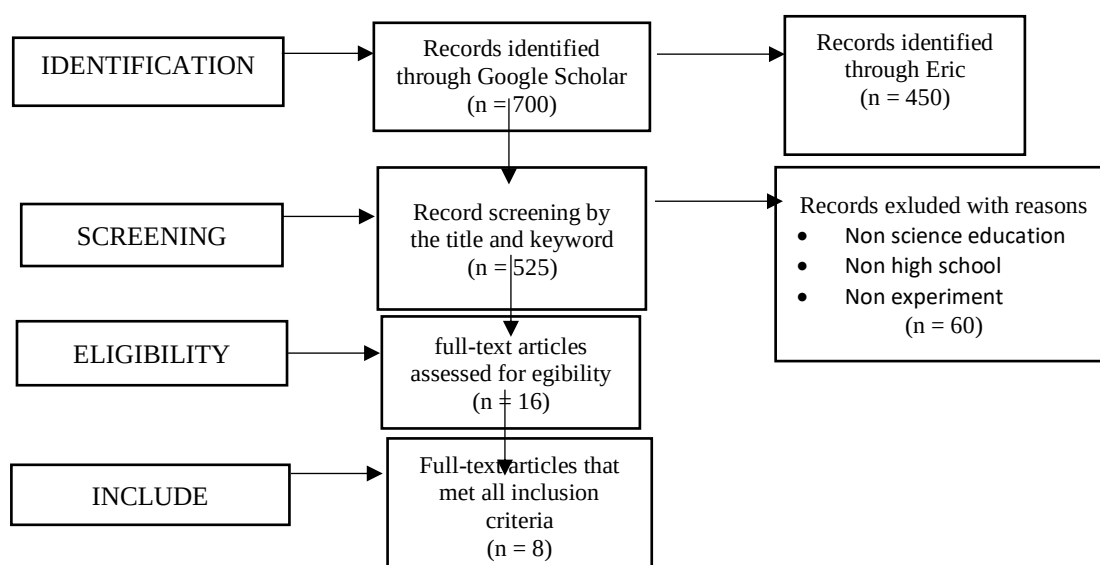


Figure 1: PRISMA Diagram of The Process of Exclusion and Inclusion of Articles

Result and Discussion

Based on the research data collected, 8 articles were obtained to be further examined. The articles selected are articles published from SINTA and Scopus indexed journals. The following is the distribution of journals used in this study:

Table 2: Selected Journals for Review

Name of Journal	f	Indexed by
Journal of Biological Education Indonesia	S3	SINTA
Journal of Education Technology	S2	SINTA
Jurnal Inovasi Teknologi Pendidikan	S3	SINTA
Journal of Physics Conference Series	Q4	Scopus
Jurnal Penelitian Pendidikan IPA	S2	SINTA
Jurnal Pendidikan Sains Indonesia	S2	SINTA

Based on the table above, it is explained that there are 8 different journal sources. The 8 journals used are SINTA and Scopus indexed journals. In accordance with the inclusion and exclusion criteria that the articles used are SINTA reputable articles for articles published from Indonesian journals, and Scopus reputable for articles published in International journals. Therefore, the articles reviewed in this study are quality articles and can be accounted for.

In addition, the representation of research according to the characteristics of the publication year used is articles published in the last five years starting from 2023, which means that the time span used is from 2019-2023

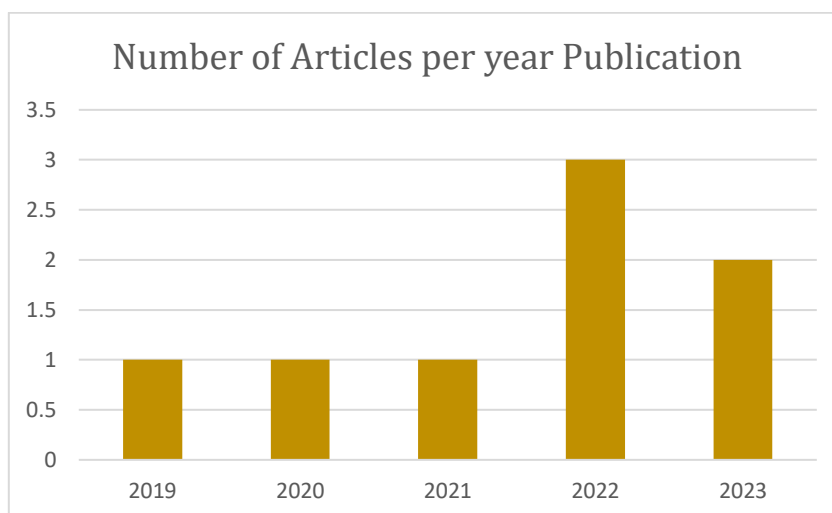


Figure 2: Diagram of Number of Articles per Year of Publication

Figure 2 explains that the 8 selected articles discuss the effect of the application or use of e-modules on student science learning outcomes. The 8 articles reviewed were published from the 2019-2023-time span, with 1 article used for the 2019 publication year, 1 article in 2020, 1 article in 2021, 3 articles in 2022, and 2 articles in 2023. Based on these reviews, the most reviewed articles are articles published in 2022 as many as 3 articles. And the least reviewed articles are articles published in 2019, 2020 and 2021 as many as 1 article each. Therefore, based on this data, it can be concluded that the articles reviewed are the latest articles and can be used as references for further research.

The type of research used in the articles reviewed is experimental and quasi-experimental research with data analysis methods using SPSS with the ANOVA formula, T-test, One Way ANOVA and Normality Test.

Table 3: Type of Research

No	Type of Research	f	Persentase
1	Experiment	6	75
2	Quasi experiment	2	25
Total		8	100%

Based on table 3, it can be seen that the 8 articles reviewed mostly used experimental research, namely 6 articles (75%) to examine the effect of e-modules on student science learning outcomes. Experimental research is research that aims to find the cause and effect between the independent variable and the dependent variable, where the independent variable is deliberately controlled and manipulated (Abraham and Supriyati 2022). Thus, the articles reviewed are a type of research that directly examines the causal relationship of the use of e-modules in science learning to student science learning outcomes. thus, it can be concluded that the results of these studies directly convey the reality and true facts that the use of e-modules in science learning will affect student learning outcomes.

The 8 articles that met the inclusion and exclusion requirements are summarized in the following table by author, article title, year of publication, journal name and research results.

Table 4. Effect of E-modules on Students' Science Learning Outcomes

Author	Article Title	Year	Journal	Result
S Sulisetijono, et al	The Effectiveness of AR E-module of Flower Structure Material on Biology Students' Science Literacy	2023	Journal of Biological Education Indonesia	The result of the effectiveness of the AR Electronic-module based in n-gain calculations obtained a score of 0.7 where on that score the AR e-module was categorize as quite scientific literacy
Arina Dini, et al	Appilication of the E-module Combined with The Guided Inquiry Learning Model to Increase Student Motivation and Learning Outcomes on The structure and Function of Plant Tissues	2023	Jurnal Penelitian Pendidikan IPA	The results showed that there were differences in students' learning motivation ($p < 0.05$), there were differences in increasing learning outcomes ($p < 0.05$), there were a significant relationship between motivation and student learning outcomes. The conclusion is there are differences in the increasing outcomes after applying learning using e-modules combined with guided inquiry

A Asrizal, et al	The Impact of Static Fluid E-module by Integrating STEM on Learning Outcomes of Students	2022	Journal of Education Technology	The median and mode values in the experiment group were higher than in the control group. This difference indicates a significant increase in student learning outcomes in the aspect of knowledge with the use of the STEM integrated static fluid E-module.
WI Zakiah and K Dwiningsih	The Effectivity of Interactive E-module to Increase the Students' Visual-Spatial Intelligence on Ionic	2022	Jurnal Inovasi Teknologi Pendidikan	The result showed that the interactive e-module of ionic bonding material developed is effective in increasing the student ionic learning outcomes and also the visual-spatial intelligence.
M Huaidah, et al	CinQASE E-module: its Effectiveness to Improve Senior High School Students' Physics Learning Outcomes	2022	Jurnal Penelitian Pendidikan IPA	Consistently Implementing the CinQASE e-module can improve physics learning outcomes for all class group with Sig. (0.161) 5%, which means that there is significant increase in learning outcomes after application of the CinQASE e-module.
R Linda, et. al	Peningkatan Kemandirian dan hasil Belajar Peserta Didik melalui E-module Interaktif IPA Terpadu tipe Connected pada Materi Energi SMP/MTS	2021	Jurnal Pendidikan Sains Indonesia	Hasil penelitian menunjukkan bahwa kemandirian belajar siswa meningkat setelah menggunakan e-module dari 64,69% menjadi 81,04% (kategori sedang-tinggi). Demikian juga dengan peningkatan hasil belajar siswa, berdasarkan n-gain = 0,76%, peningkatan kategori sedang.
A Suyatna	ICT Learning Media Comparative Studies: Simulation, e-module, Videos	2020	Journal of Physics: Conference Series	The learning outcomes which the class was assisted by the e-module ICT media e-model show the higher result.
R Sujanem, et al	The Effectiveness of Problem Basic Interactive Physics E-module on High School Students' Critical Thinking	2019	Journal of Physics: Conferences series	The results shows that there is significant difference in students' CTS before and after using IPEM. The students' CTS after using IPEM is better than before using IPEM in learning process. That is why the IPEM in the BPBL model is effective to improve the students' CTS oh high school.

Based on Table 4, it can be seen that the application or use of e-modules in science learning can have an influence on students' science learning outcomes. The influence that is present after the application or use of e-modules is a positive influence on student science learning outcomes. Students' science learning outcomes that can be improved after the application of e-modules in learning are not only in terms of students' cognitive skills, but motivation and learning independence also increase along with the improvement of students' cognitive skills.

Researchers reviewed 8 articles that met the inclusion and exclusion criteria related to the effect of e-modules on student science learning outcomes. Learning outcomes are competencies and skills possessed by students obtained through the learning process. Based on Bloom's Taxonomy, student learning outcomes are divided into 3, namely cognitive, affective, and psychomotor (Andriani and Rasto 2019). Cognitive (concept understanding) is a student achievement that includes intellectual learning outcomes consisting of 6 aspects, namely knowledge, understanding, application, analysis, synthesis, and assessment. Affective (Attitude) is part of learning outcomes that not only include mental aspects, but also include physical responses. Psychomotor (Process skills) are skills that lead to basic mental, physical, and social development as a driver of higher abilities in individuals (Ulfah and Arifudin 2021). After analyzing the research results from the 8 selected articles, it can be concluded that student learning outcomes that are influenced after applying e-modules in learning are divided into three, namely cognitive, affective and psychomotor skills.

In the process of improving student science learning outcomes, improvements are needed in the presentation and provision of learning media that are in line with current developments. A total of 8 articles reviewed contain the influence of e-modules as a form of today's innovative learning media to improve student learning outcomes, especially in science learning. Sulisetijono et al., (2023) conducted research related to the effectiveness of E-Modules AR flower structure to improve students' science literacy. Science literacy is about mastering the content, process, and context of science (Dwicky Putra Nugraha 2022). So it can be said that science literacy is one part of student learning outcomes, especially cognitive skills. Based on the results of S Sulisetijono's research, it shows that the application of AR e-modules can improve students' literacy abilities and students' science skills on flower structure material.

In the field of biological science, research in 2023 was also conducted by Dini et al., (2023), related to the use of e-modules combined with guided inquiry learning models to increase student motivation and cognitive skills learning outcomes. Arina examined, the motivation and learning outcomes of students on the material of the structure and function of plant tissues before and after using e-modules with guided inquiry learning models, and showed the results that e-modules that were designed to be attractive and interactive significantly increased the learning motivation of grade XI students in high schools. In addition, along with the increase in student learning motivation, students' understanding of concepts in structure and tissue material also increases. So that the application of this e-module improves student learning outcomes (cognitive skills).

Of the 8 articles reviewed, the most widely used articles were articles published in 2022. Research conducted by Asrizal et al., (2022) on the impact of static fluid e-modules by integrating STEM on student learning outcomes showed an increase in student learning outcomes in terms of cognitive skills. In addition, Asrizal also examined the effect of using

static fluid e-modules integrated with STEM on student attitudes (affective skills). The results showed that the value of student attitudes in the experimental class was higher than the control class. In the experimental class, students can work well together, tolerate and be responsible for group assignments. Then, the science process skills in the experimental class also increased compared to the control class.

In the same year, research conducted by Zakiyah & Dwiningsih, (2022) related to the effectiveness of interactive e-modules in improving students' visual spatial intelligence in subjects also showed positive results. Three tests were conducted to measure the effectiveness of interactive e-modules, namely the N-Gain test, Normality Test and t-Test. The overall test results showed good results of 0.81 with a high category. According to Triutami, visual spatial intelligence is the skill of learning students by using visual images. This intelligence also has advantages in terms of imagination of visual forms and being able to repeat these forms well and relatively likes to engage with visual objects compared to abstract symbols, and is better able to absorb learning well if presented with the help of visual objects. Therefore, visual spatial intelligence is part of students' cognitive skills (Triutami et al. 2021).

In line with research conducted by Hunaidah et al., (2022) also shows the same results, namely the application of the CinQASE e-module is significantly effective in improving student cognitive skills learning outcomes in grade 10 high school in physics subjects. Supported by previous research conducted by Linda et al., (2021) also shows positive results, namely the application of integrated science interactive e-modules can improve student learning outcomes in terms of cognitive skills in junior high school students. In the same study, an experiment was also conducted to test student learning outcomes in terms of affective skills (attitudes), namely independent attitudes and the results showed that there was an increase in students' independent attitudes from 64.69% to 81.04% (medium-high category).

A number of other previous studies also support the results of the above studies, including research conducted by Suyatna, (2020) related to "ICT Learning Media Comparative Studies: Simulation, e-module, Videos" on science learning in junior high school students. The results of A Suyatna's research show that the use of ICT (Information and Communication Technology) based learning media, namely e-modules, shows the highest effect in improving students' science learning outcomes from a cognitive perspective compared to videos and simulations. Then the next research also shows the results that the application of e-modules in science learning can improve students' critical thinking skills. This research was conducted by Sujanam et al., (2019) to examine the effectiveness of problem-based physics interactive e-modules. Critical thinking is reflective and reasoned thinking that focuses on making decisions about what to believe or do. The concept of critical thinking skills in students means that students are required to be able to analyze arguments, make conclusions using inductive and deductive reasoning, assess or evaluate, and make decisions and solve problems (Nurazizah, Sinaga, and Jauhari 2017). According to a cognitive psychologist, CT is the use of cognitive skills or strategies that increase the probability of desired results (Alsaleh 2020). CT becomes one unit with cognitive skills, because in one of the concepts of cognitive skills, namely the ability to think of students, so it can be said that CT is part of cognitive skills. Based on the results of R Sujamen's research, after the use of problem-based e-modules in physics subjects can improve students' thinking skills.

Conclusion

Based on the 8 articles reviewed, it can be concluded that e-modules can have a positive influence on student science learning outcomes. Learning outcomes influenced by e-modules can be in the form of cognitive, affective and psychomotor skills. The dominant learning outcomes influenced by e-modules in science learning are students' cognitive skills. In addition, several other aspects that also increase with the use of e-modules in science learning such as student learning motivation and independence in learning. It is hoped that this research can become literature for readers or future researchers to find out the effect of using e-modules on student science learning outcomes.

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THE INFLUENCE OF SOCIAL MEDIA ON STUDENT PERFORMANCE: A SYSTEMATIC LITERATURE REVIEW

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Abstract: Social media or social network sites are a place for everyone to interact, get and provide information or just look for entertainment. The high use of social media in everyday life can of course have an impact on human habits, especially students. The high use of social media among young people who are still in school can actually have an impact on habits which also affect their performance in academic activities at school. This article will discuss the good and bad impacts of social media on the performance of students who use it through a systematic literature review. With a systematic literature review it will help to see how social media can influence either positively or negatively social media on student performance. The PRISMA diagram's three steps identification, screening, and inclusion were followed in conducting the review. Furthermore, papers from third sites were only collected between 2019 and 2024; data sources included SCOPUS, Google Scholar, and Web of Science. Using subject and question-related keywords helped to refocus the article search. Three main themes emerged from a further analysis of the pieces. These subjects included social media effect and student performance. It is intended that this study will act as a guide for next scholars and the advancement of communication science.

Keywords: Sistematic Literature Review; Social Media; Student Performance

Introduction

Modernization in the 21st century has a huge impact on human growth and development. Regardless of age, modernization is contagious. Especially people in productive age and teenagers to children. Modernization that spreads very quickly is social media. Social media has an impact on people's behavior and lifestyle. People at a productive age such as during school have an important role in managing social media. But unfortunately, the impact of social media is not only from the positive side but also has a negative impact on the cognitive, behavior and lifestyle of students at school. So that a very appropriate effort is needed to regulate the flow of social media.

Social media is a place to share information, ideas, and thoughts both near and far. The sophistication of technology that is growing rapidly in this era, is able to give birth to platforms that can help humans communicate remotely and get information quickly. It is undeniable that humans tend to spend their time with social media because they can get any information quickly. Social media that can be accessed through cellphones, PCs, tablets and even laptops are not only in demand by adults, but also children and teenagers who are still students. There are many different types of social media, such as blogs, microblogs, social networking sites,

chat platforms, open source maps, and picture and video sharing (Gastelum & Whattam, 2013). This has a huge impact on student performance in learning activities. Numerous empirical studies have examined whether social media use has a positive, neutral, or negative impact on students' academic performance (Lau, 2017). Requiring an in-depth analysis of the issue, the article presented aims to offer a thorough synthesis of the research findings from previous studies in order to ascertain the overall impact of social media on the academic performance of students.

Methodology

Aims

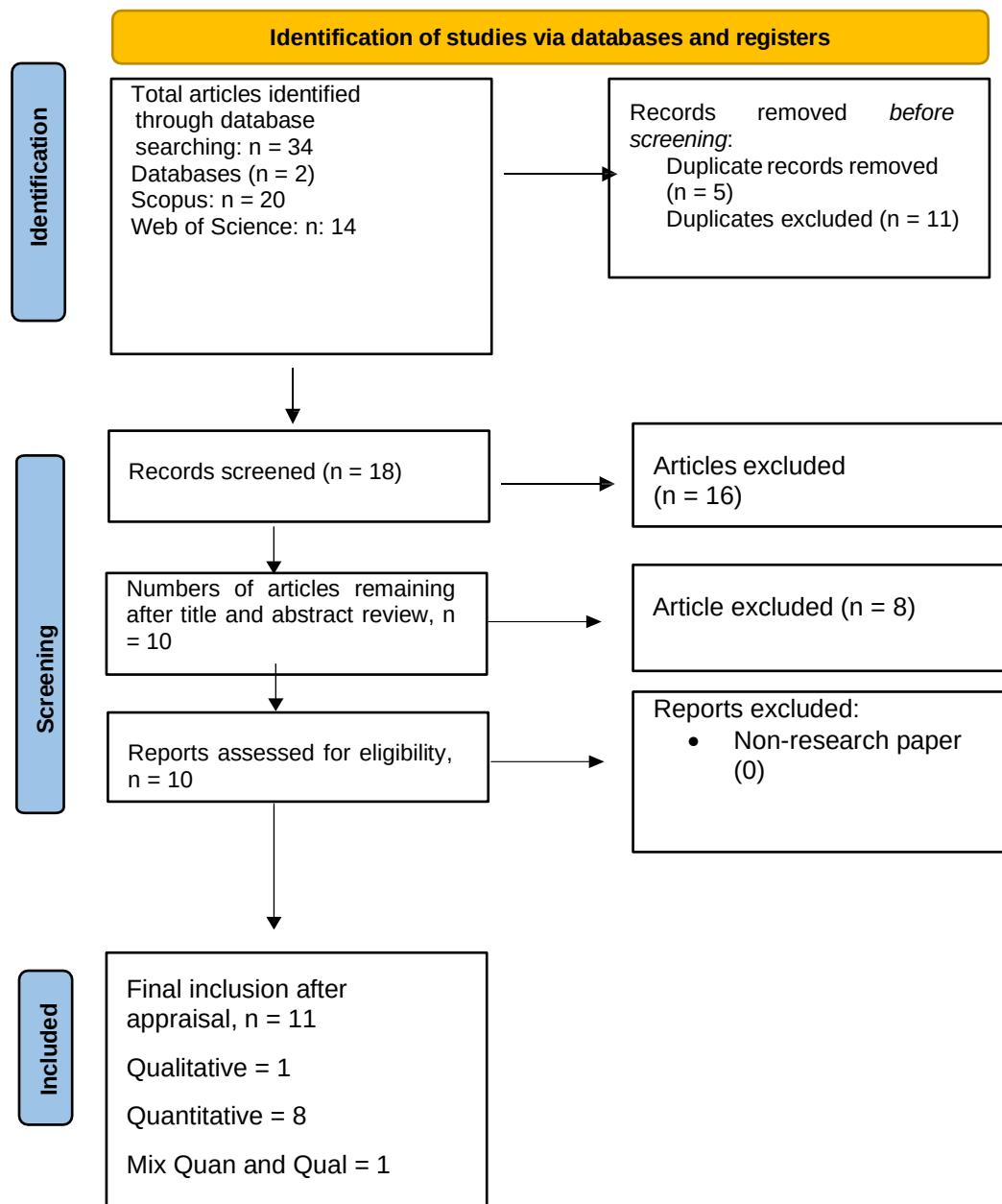
The purpose of this study is to To provide a comprehensive synthesis of the findings from existing studies to determine the overall effect of social media on student academic outcomes. The main focus of this study is to analyze the students side of social media utilization. We pose several research questions that will lead to a deeper understanding of the subject matter, as follows.

RQ1: What role do specific social media platforms (e.g., Facebook, Twitter, Instagram) play in influencing student performance?

RQ2: What are the potential positive and negative effects of social media use on student performance?

Design

SLR is a writing style that enables the collection of facts in support of the subject matter by using predefined criteria; this is done in order to get the answers to the research questions posed (Mengist et al., 2020). By employing systematic procedures, systematic reviews of research may be guided and assisted by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which also helps to lessen bias or inclinations (Wu et al., 2018).



Search Strategy

Web of Science and Scopus were two of the sites used to search for reference materials. A keyword-based search technique was developed to find relevant reference materials.

Scopus	"Student Performance")) AND (LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTKEYWORD , "Social Media") OR LIMIT-TO (EXACTKEYWORD , "Students") OR LIMIT-TO (EXACTKEYWORD , "Social Networking (online)"))
Web of Science	"influence" AND "social media" AND "student performance" (All Fields) OR "Impact*" AND "Social Network Site*" AND "Student Academic" (All Fields) OR "Effect*" AND "social platform*" AND "Student Performance" (All Fields) and 2019 or 2020 or 2021 or 2022 or 2023 or 2024 (Publication Years) and Article (Document Types) and 2023 or 2024 or 2022 or 2021 or 2020 (Publication Years)

Screening

A few assessment and evaluation factors are taken into account. First, in relation to literary genres, only journal articles that include verifiable empirical data are identified as having a literary style, as are book spines, book chapters, book reviews, and unrepresented conference proceedings. Furthermore, the study's focus should be on English-language publications rather than non-English ones in order to address limitations and challenges in the research process. The third, which deals with time restrictions, is split into five years (2019 to 2024), which is a suitable time frame to see how related research and publications have developed. As the review process focused on communication leading to the impact of social media on student behaviour. The article search was refocused by using keywords related to the topic and question statements, including communication, student, social media and influence.

Table 1: Screening Table

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles and systematic review)	Book series, book, chapter in book, conference proceeding
Language	English	Non-english
Time line	Between 2019-2024	<2018
Indexes	Social Science Citation Index, communication index (Web of Science) & (Scopus)	Science Citation Indexed Expanded

Data Abstraction and Analysis

Screening and analysis of several papers as references for this research has been carried out. From several papers that have been analyzed, several papers have been collected that are appropriate to the discussion of the problem. This method asked research questions on the function of certain social media platforms and their possible benefits and drawbacks for student performance in order to give a thorough synthesis of data to ascertain the overall impact of social media on student academic achievements. In conclusion, the study offers a thorough examination of the effects of social media and mobile phone use on students.

Results

Author/ Year	Country	Design	Data Collection Method	Findings and Result
(Ahmad, 2020)	Malaysia	Quantitative	Questionnaire as its instrument to collect data	- The study revealed that teen academic performance may suffer as a result of mobile phone addiction. - The study's overall findings indicated that mobile phone addiction among secondary school students may have an impact on their academic performance.
(Alkhatat et al., 2020)	Kuwait	Qualitative	Investigated the opinions and goals using a comparative design.	The study's conclusions showed that the participants had good opinions regarding implementing Web 2.0 tools in their future classes, highlighting advantages including enhanced student learning, engagement, and communication.
(Samed et al., 2020)	Jordan	Quantitative	Online survey data collection	show that the usage of social media in student learning is positively impacted the students academic perceptions by views of its benefit, ease of use, improved communication, collaborative learning, and enjoyment but has insignificant impact on students usage of social media for learning.
(Dzogbenuku et al., 2022)	Ghana	Quantitative	Survey data collection	discovered that the relationship between social media information and social media performance is partially mediated by social media entertainment, with a significant amount of mediation (74.9%) indicating that social media entertainment is practically necessary to achieve the best possible performance through social media content.

(Dong et al., 2023)	United States	Quantitative	Gathering information from overseas students by distributing a survey to them via social media and email	The study intended to study the complex link between social media use and how it affects international students' participation in their studies. After thorough investigation, it was discovered that social media is crucial, however its effects vary based on how it is used and the social and cultural factors at work.
(Di Natale et al., 2024)	Italy	Quantitative	Survey data collection	The research shows that important factors influencing students' desire to use IVR in their education include performance expectation, effort expectancy, social influence, and conducive environments.
(Bolton-King et al., 2022)	United Kingdom	Mixed-methods research design	Case studies of network instructors, social media analysis, and participant surveys	The network played an important part in supporting an increase of digital abilities and inventive teaching methodologies among its members.
(Al-Rahmi et al., 2022)	Malaysia	Quantitative	questionnaires as the data collection	The findings show that a variety of factors, including technological features, social qualities, performance expectation, and effort expectancy, have an important effect on the intention of learners to use social media for learning.
(Watat & Bonaretti, 2022)	Cameroon	Quantitative	By sending a questionnaire to students in Cameroonian university cities and other higher education institutions	The report emphasizes how important social media is for university marketing and promotion in addition to improve academic success. It means social media may be an effective instrument for learning, information sharing, and enhancing academic achievement in higher education.
(Koç & Turan, 2020)	Turkey	Quantitative	convenience sampling by face-to-face questionnaire	Gender and SNS addiction patterns have a high correlation, with females demonstrating greater SNS intensity ratings than males. This suggests that SNS usage is more common among women than among men.

The results of this research can be concluded from references to several papers that we have taken for analysis. These papers come from several countries which analyze the influence of social media on student performance there. The results of previous research related to the

influence of social media are whether there is a positive or negative influence on social media and which social media platforms have the most influence on habits that influence student performance.

Positive and Negative Effects of Social Media

From few papers such as research from Turkey, Kuwait, and Italy indicate that social media can improve student communication, participation, and learning. It may make a variety of educational resources accessible and make it easier for students and teachers to work together. This study explores the attitudes and plans of preservice kindergarten teachers in Kuwait with regard to using Web 2.0 technology into their future teaching environments. The study pinpoints important variables that affect these intents, such as instructors' attitudes, perceived utility, usability, and subjective standards. Despite the fact that the results show a generally positive view of technology use, emphasizing its potential advantages for parent-student communication, student engagement, and educational improvement, it is also evident that teachers lack confidence in their ability to successfully incorporate technology into their lesson plans (Alkhayat et al., 2020). In another paper, using the Unified Theory of Acceptance and utilize of Technology (UTAUT) as a predictive framework, the study shows that students' intentions to utilize IVR in the classroom are significantly influenced by performance expectation, effort expectancy, social influence, and enabling factors. It's interesting to note that the study discovered that, despite initial expectations that they may be influential elements, learning styles and personal innovativeness had no effect on students' perceptions regarding IVR.

The study emphasizes how crucial it is to acknowledge the special learning opportunities that IVR offers and to help students become receptive to new technologies in order to promote IVR's use in the classroom. The results point to many important measures for facilitating the successful integration of IVR into educational contexts, including ensuring that systems are designed with ease of use, emphasizing the educational benefit of IVR, and providing the infrastructure and support that educators and technology developers need. Although these criteria had no direct effect on IVR adoption intentions, the study nevertheless supports adjusting instructional materials and experiences to students' interests and learning styles (Di Natale et al., 2024). Males have a statistically significant greater network size on SNSs than females, according to the study. These results imply that there are gender disparities in SNS addiction and usage patterns, with women using SNS more frequently and men maintaining larger networks because of their superior communication abilities, which make them more popular on social networking sites (SNS) than men, women utilize social media more than men do. Furthermore, female students choose SNS over male students for communication and amusement due to the former's greater desire to belong in a group.. The study's findings add to our understanding of how social media addiction affects academic performance and emphasize the need for more research in this field, particularly in light of the convenience sampling method's limitations and the study's emphasis on Turkish university students (Koç & Turan, 2020).

Better Academic Perception, according to research from Jordan, using social media in the classroom can have a favorable effect on students' opinions on the advantages, usability, and pleasure of the medium (Samed et al., 2020) It enhances encouragement of creative Teaching,

according to a UK research, social media can encourage the use of creative teaching strategies and help teachers become more proficient with technology (Bolton-King et al., 2022). Marketing and Promotion, the Cameroonian study emphasizes the use of social media in university marketing and promotion, which can raise academic achievement and success in postsecondary education (Watat & Bonaretti, 2022).

Mobile Phone Addiction: According to a Malaysian study, teen academic performance may suffer as a result of mobile phone addiction, which is frequently linked to excessive social media use. **Mixed Impact on International Students:** According to a US research, depending on how it is utilized and the social and cultural context in which it is employed, social media use can have varying affects on how engaged international students are in their academic pursuits. **Gender Variations in Social Network Site Addiction:** According to a Turkish research, there may be variations in the intensity of social network site addiction depending on a person's gender, with women ranking their addiction higher than men. Overuse of social media may have detrimental effects, including social isolation and poor academic achievement.

Discussion

The Malaysian study emphasizes the detrimental effects of teen phone addiction on academic achievement. This research emphasizes the necessity for students to properly control their mobile phone use in order to prevent negative consequences on their academic performance. According to the Kuwaiti survey, there is a favorable sentiment on the use of Web 2.0 resources in upcoming lessons. This suggests an understanding of the possible advantages of these resources, including improved communication, engagement, and learning. According to a Jordanian study, students' use of social media for learning had a beneficial impact on their judgments of their academic performance. It has little effect on practical usage for educational reasons, though. This research implies that even if students are aware of the advantages of social media for learning, they might not be making the most of it. The Ghanaian study emphasizes the function of social media entertainment in moderating the connection between performance and knowledge on social media. This research implies that social media entertainment material may have a big impact on academic achievement by influencing motivation and engagement.

The American study highlights how intricate the relationship is between social media use and the academic engagement of overseas students. The differing impacts according to usage and sociocultural variables imply that social media's influence on overseas students is complex and needs more research. The Italian study pinpoints key elements impacting students' interest in using interactive virtual reality (IVR) in the classroom. These elements, which include social influence and performance expectations, emphasize how crucial social norms and perceived utility are when implementing new educational tools. This study from the United Kingdom shows how social media networks help teachers become more proficient digitally and use creative teaching methods. According to this research, social media may be an effective resource for educators' professional growth.

The Malaysian study finds a number of factors impacting students' inclination to utilize social media for education. These elements technological characteristics and performance standards, for example offer insights into the variables that encourage students to utilize social media for

learning. The Cameroonian study emphasizes how crucial social media is to university marketing and promotion. According to this research, social media can help colleges become more visible and draw in more students. Gender disparities in SNS Addiction (Koç & Turan, 2020): According to a Turkish study, there are gender disparities in SNS addiction, with women reporting their addiction as more intense than men. This research raises the possibility that gender differences in SNS usage patterns exist, which may have an impact on educational initiatives and laws designed to combat SNS addiction.

Conclusion

In conclusion, taken together, show the many different and intricate ways that social media may affect schooling. Social media presents difficulties like addiction and diversions in addition to advantages like improved communication and educational possibilities. These results should be taken into account by educators and legislators when implementing social media into the classroom.

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SUGAR RECOVERY FROM ENZYMATIC HYDROLYSIS OF WASTE BREAD STARCH: EFFECT OF PROCESS CONDITION

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Abstract: The starch was from the source of bread that are not being used or thrown away. After collection of expire bread, they was grinded and pre-treated using enzymatic hydrolysis. The α -amylase and amyloglucosidase enzyme was applied for the pre-treatment of the starch to break down the strcuture of polysaccharide of the starch into simple sugar. The pre-pretreatment undergo three stages which are gelatinisation, liquefaction and saccharification process. The concentration of glucose yield and the kinetic parameters (K_m , and V_{max}) are studied. The final yield of glucose are 188.90 mg/ml obtained at 60°C in 60 min. V_{max} value for different reaction time are 6174.14 $\mu\text{mol/L/min}$ and the value of K_m was 35 min. The value of V_{max} are 3443.24 $\mu\text{mol/L/min}$ and the value of K_m was 60 g/L are for different substrate concentration used. The results of kinetic study for the enzymatic hydrolysis of starch are affected by the source of the starch and the conditions of pre-treatment of the starch.

Keywords: Enzymatic Hydrolysis; Enzymes; Waste Bread; Starch; Kinetic

Introduction

Waste bread consist of starchy material that contains fermentable sugars and proteins in a clean form. It is stable, has a homogenous composition, and the sugars yield are as good as pure sugars. Bread is the most frequently wasted food item in the developed world and compared to the lignocellulosic feedstocks, they needed physical, chemical, and enzymatic pre-treatment for the release of fermentable sugars because of the complex structure of lignocellulosic materials, starch of waste bread has structures that are more simple and extractable (N. Vivek, 2021).

Enzymatic hydrolysis pre-treatment by using α -amylase enzyme is a common pre-treatment procedure. Experimenting the optimum hydrolysis conditions is essential for getting a better product yield of fermentable saccharides. By optimising enzymatic hydrolysis conditions of waste bread at the liquefaction and saccharification stages, 99 percent of theoretical maximum glucose yield, a key fermentable sugar, is attained. With the addition of α -amylase enzyme, the viscosity of the sample drop significantly and the structure of the polysaccharide are opened-up and broken down to simple monomer. At the end of the process, the viscosity of the slurries remain very low and does not vary significantly (G. Tuncay, 2016). Enzymatic hydrolysis relies on the chemical interaction of enzyme on the cell wall to loosen the connections and allow for simple lipid extraction after cell rupture (Lari, Z. et al., 2019).

Enzymes are important because they can catalyze a variety of reactions. Because of their extreme specificity, enzymes can regulate reactions and stop them when necessary. Enzymes can be employed to transform raw materials into more flavorful products in certain circumstances, but others result in undesirable properties that need to be eliminated. Similar to how the system substrate—active site—enzyme—cofactor defines the enzyme reaction mechanism, the enzymes used in industry can be categorized based on the type of reaction they catalyze. Enzymatic kinetics can be used to determine the needs of enzymes. The rate at which chemical reactions catalyzed by enzymes occur is described mathematically by enzyme kinetics (Juárez-Enríquez, E. et al., 2022).

Amyloglucosidase enzyme is the maltase enzyme that is produced from various microbial species. It is manufactured intracellularly, extracellularly, or as a form that is attached to cells. It is an essential component of many biological systems. It was included among amylolytic enzymes that are involved in the breakage of the α -(1,4) glycosidic linkages found in maltose, which yields d-glucose as the final product. The starch polymer of the waste bread is depolymerized by α -amylase into maltose, which is then hydrolyzed into glucose molecules by maltase (Nawaz, M. et al., 2019).

Glucoamylases, alternatively referred to as amyloglucosidase or γ -amylase, catalyze the release of β -D-glucose from the non-reducing ends of starch by hydrolyzing α -1,4 and α -1,6 glucosidic bonds. However, glucoamylases are able to fully hydrolyze all of the starch to β -D-glucose due to the hydrolysis of the α -1,6 branch connections. A number of parameters, most notably the amylose quantity, granule surface type, and botanical origin, influence how susceptible starch is to hydrolysis by amylolytic enzymes. A previous investigation using glucoamylases from *Rhizopus niveus* revealed a wide range in the susceptibility of starch granules from seven botanical sources (waxy maize, maize, barley, tapioca, amylomaize-7, shoti, and potato) to enzymatic hydrolysis. However an analysis of how different amylases worked with granular starches revealed that the amylase source had an impact (Souilah, R., et al., 2015).

The objectives of the study were to determine the hydrolysis conditions of the waste bread using enzymatic hydrolysis pre-treatment and to study the kinetics of enzymatic hydrolysis of the isolation starch from the waste bread using Michaelies-Menten kinetic model.

Initially, scientists have characterized the enzymes using the MM equation. Understanding cellular systems and applying enzymes in industry require an examination of enzyme kinetics. When estimating the kinetic parameters of an enzyme from reaction progress curves of substrates—a procedure known as the progress curve assay—the Michaelis-Menten equation has been widely applied for more than a century. The Michaelis constant K_m and maximal reaction velocity V_{max} , which represent the properties of the enzyme under particular conditions, are the two parameters that make up the MM equation. Two types of experiments are used to estimate these parameters: initial rate experiments and time-course experiments. The former is more frequently used because it can be applied to much more complex reactions and has the advantage of reducing potential interferences from reversible reactions, enzyme instability, and product inhibition (Yun, K. I. et al., 2020) (Choi, B. et al., 2017).

Materials and Methods

Materials

The breads that had reached their shelf life were collected from local stores. The waste breads were ground into fine powder, autoclaved, and kept in storage for further use. For hydrolysis, α -amylase enzyme (diastase fungal) was purchased from the R&M with amylase activity of 1:2000, and the commercial enzyme (amylglucosidase) was purchased from Sigma-Aldrich. The enzyme is 30-60 units/mg protein.

Gelatinization and Liquefaction Process of Starch of Waste Bread

The substrate that was prepared was used with amount of 15% w/v of suspension. First process was gelatinization where the suspension was heated at 70°C for 15 minutes. The pH was adjusted to 6 with sodium citrate buffer. The gelatinized substrate was cooled to 30°C. The process liquefaction was carried out by adding 2% w/v alpha amylase enzyme into the gelatinized suspension for 120 minutes. The procedures were repeated three times. The procedures were done with different conditions of temperature, enzyme concentration, and reaction times.

Saccharification Process of Starch of Waste Bread

After the process of liquefaction, saccharification process was carried out with the addition of 5mg of amylglucosidase enzyme. It was done under different temperature and reaction time. Within regular intervals of time, the samples were withdrawn to determine the sugar concentration. The values of the Michaelis constant K_m and the maximum velocity V_{max} were determined from the Lineweaver-Burk plots.

Analytical Methods

Analysis of the Amount of Sugar Produced

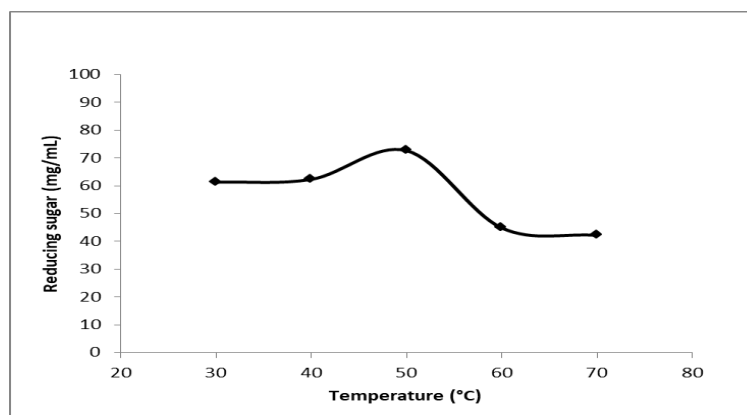
According to K. Sumit et al., 2021, the Dinitrosalicylic Acid (DNS) Reagent with modification was applied in this study to determine the presence and the concentration of sugar. DNS Reagent was prepared by using dinitrosalicylic acid, sodium hydroxide, and sodium potassium tartrate. 1 mL of sample was taken and diluted to 100 dilution factor. DNS Reagent and Sodium Potassium Tartrate solution was added into 2 mL of the diluted sample and heated for 5 minutes. The wavelength was measured using Spectrophotometer at 575nm. The concentration of sugar produced from the enzymatic hydrolysis was determined using standard calibration of glucose.

Results and Discussion

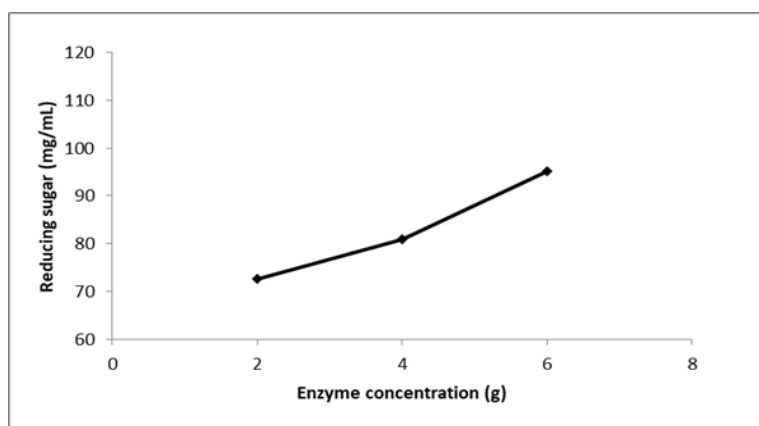
Effect of Process Condition on Total Reducing Sugar Recovery on Liquefaction Process

The work of the enzyme improves efficiently with increasing temperature. Hydrolysis requires heating process because heating of the substrate enhanced the number and size of porous structure and pinholes on the granule surface, facilitating enzyme adsorption and subsequent penetration (Kong, H. et al., 2018). Based on Figure 1(a), at 30°C, the concentration of sugar was 61.31 mg/ml. The concentration of sugar started to increase to 62.34 mg/ml and 72.65 mg/ml as the temperature increased to 40°C and 50°C respectively. The α -amylase works best

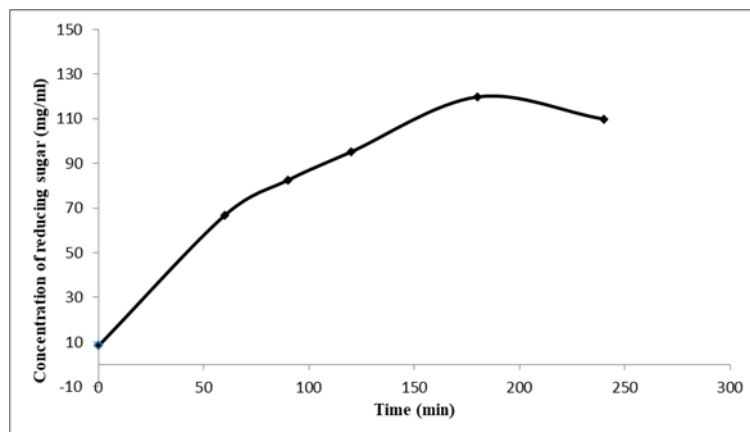
at temperature 50°C. When temperature rose, the molecules move quickly and the substrates frequently collide with the active sites on the α -amylase. This increases the enzyme activity. Then, the sugar yield started to decrease at 60°C and 70°C suggesting that α -amylase enzyme worked inefficiently at high temperature. Practicing hydrolysis process at low temperature cause it to use less energy. The means by which that temperature affects covalent and hydrogen bonds may have an impact on the flexibility of the α -amylase. The shape of a protein is made up of chemical bonds, and since the function of a protein is correlated with its shape, activity would either diminish or have an adverse effect on the reaction of the starch hydrolysis (Eed, J., 2012) (Lari, Z. et al., 2019).



(a) Different Temperature



(b) Different Enzyme Concentration



(c) Different reaction time

Figure 1: Total reducing sugar (mg/ml) hydrolysates by enzymatic hydrolysis under (a) different temperature, (b) different enzyme concentration and (c) different time

After determining that 50°C provided the highest sugar yield, the liquefaction process was continued with various enzyme concentrations. In conditions when there is very little enzyme stability or slow reaction progression, it is preferable to increase the enzyme concentration in order to increase measurement sensitivity (Yun, K. I. et al., 2020). Based on Figure 1(b), the highest reducing sugar was 95.15 mg/mL at 6 g of enzyme concentration while the lowest reducing sugar was 72.65 mg/mL at 2 g of enzyme concentration. This shows that, as the concentration of enzyme increases, the amount of sugar increases. The increase in total reducing sugar was predicted because higher enzyme concentrations make more enzymes available per unit of substrate and increase mass transfer and enzyme transport to the starch granule surface (Thani, N., et al., 2019).

After the temperature and enzyme concentration for the liquefaction process were established, the reaction time was also examined. Figure 1(c) shows that the sugar concentration increases with the increasing time and started to decrease at certain time. The yield of reducing sugar steadily and quickly rose during the initial stage of enzyme hydrolysis reactions. The yield of reducing sugar increases continuously from 0 to 180 minutes of reaction time, but starts to decrease once reaction time reaches 240 minutes. Due to the lack of a substrate, the presence of an enzyme inhibitor, or the deactivation of the enzyme, the hydrolysis efficiency may decrease (Rosdee, N. A. S. M., et al., 2020). The highest sugar yield was 119.73 mg/mL at 180 minutes; therefore the suitable reaction time for liquefaction process of the expired bread was at 180 minutes.

Table 1: The Velocity of Different Reaction Time

Time (min)	Velocity ($\mu\text{mol/L/min}$)
60	6174.14
90	5086.84
120	4401.18
180	3692.09
240	2537.79

Table above shows the velocity of glucose yield from the liquefaction process. The highest value of the velocity ($\mu\text{mol/L/min}$) was from the condition of hydrolysis at 60min which was 6174.14 $\mu\text{mol/L/min}$. The value of K_m was 35 min. At initial hydrolysis process (60 min), the enzyme activity was the highest. This shows that the rate of substrate consumption (waste bread) was fastest at the beginning of the enzymatic hydrolysis using α -amylase.

Saccharification Process of Starch of Waste Bread

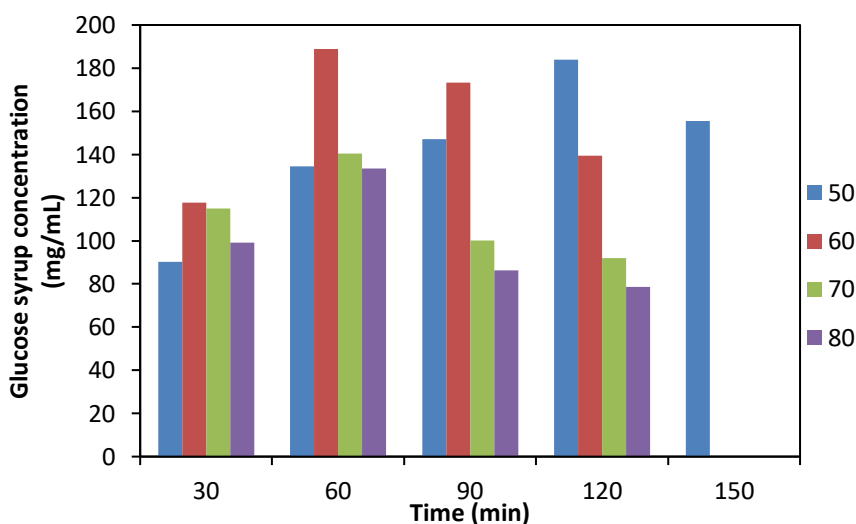


Figure 2: Enzymatic Pre-Treatment of Waste Bread at Different Temperature At 50, 60, 70, And 80°C for Saccharification Process

Saccharification process was continued by using amyloglucosidase enzyme. This procedure was carried out at various temperatures, and the sugar produced was observed periodically. The research was conducted at constant concentration of amyloglucosidase enzyme (30-60 units/mg) and pH 4.2. The glucose syrup produced from this process was presented in Figure 2.

Different temperature ranges revealed varying patterns in the glucose syrup made for the stale breads. According to Figure 4, the enzyme amyloglucosidase significantly influenced the glucose synthesis. The amount of glucose yield for the expired breads increased for all temperature conditions up to 60 minutes. The yield of glucose syrup decreased at 90 minutes for temperatures of 60, 70, and 80°C. Glucose concentration in 50°C increased at 120 minutes

before declining at 150 minutes. This develops by an excess of the enzyme amyloglucosidase, which has a limited number of targets, and saccharides hydrolyzation. (OMAR, R. et al., 2021).

The highest sugar produced was 188.90 mg/ml obtained at 60°C in 60 min. This observation indicated that amyloglucosidase enzyme operates efficiently at 60°C for the hydrolysis of the expired breads. Compared to other conditions, the hydrolysis occurred for a shorter period of time with higher amount of sugar produced.

Table 2: The Velocity of Different Substrate Concentration

Substrate concentration (g)	Velocity ($\mu\text{mol/L/min}$)
0	0
5	1535.055
10	2922.711
15	2967.116
20	3443.236

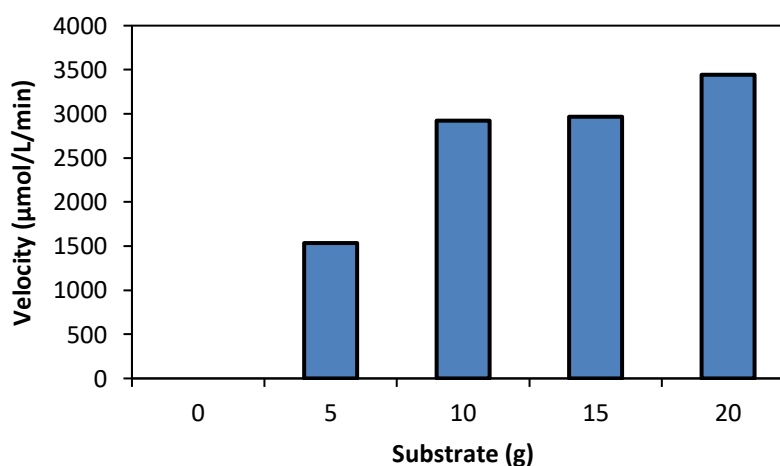


Figure 3: The Curve of Enzymatic Hydrolysis Of Waste Bread with Different Substrate Concentration

Alteration of substrate concentration was carried out to evaluate whether the velocity was affected by different substrate concentration. Figure 3 shows the curve of enzymatic hydrolysis of waste bread with different substrate concentration. The kinetics of glucose yield was described by the Michaelis-Menten Kinetic model. Based on the figure, the value of V_{max} was 3443.24 $\mu\text{mol/L/min}$ and the value of K_m was 60 g/L. From the different substrate concentrations, it shows that highest substrate amount had the highest value of the velocity. The presence of enzyme and the substrate affect the kinetic of starch in glucose production. The glucose recovery percentage by liquefied suspension of waste bread was 71.84%. From the value of the glucose concentration of both process of enzymatic hydrolysis, there was 57.77% of the efficiency of the amyloglucosidase enzyme to turn into simple sugar or monosaccharides from the liquefied suspension.

Table 3: Velocity of Glucose Yield from The Saccharification Process

	50°C	60°C	70°C	80°C
	Velocity $\mu\text{mol/L/min}$			
30 min	16707.37	21758.44	21277.38	18354.06
60 min	12442.64	17475.21	12988.46	12350.13
90 min	9066.02	10694.198	6179.69	5322.43
120 min	8506.33	6447.972	4250.85	3640.28

Table 3 shows the velocity of glucose yield from the saccharification process. The highest value of the velocity ($\mu\text{mol/L/min}$) was from the condition of hydrolysis at 60°C for 30 min which was 21758.44 $\mu\text{mol/L/min}$. The speed of the enzyme depends on the value of the kinetics. When the velocity was lower, the speed of the amyloglucosidase enzyme in the reaction also lower. The enzyme do not work well in higher temperature and it also has to build up higher energy for the reaction at this temperature (80°C). The enzyme also consume more energy at longer reaction time (120 min). It shows different conditions of enzymatic hydrolysis affecting glucose yield from the starch hydrolysis of the waste bread (Souilah, R. et al., 2015).

Conclusion

In conclusion, the highest sugar yield from starch of waste bread was 119.73 mg/mL at 50°C, 6% w/v of enzyme concentration and 180 mins of reaction time for liquefaction process while for saccharification process, the amount of glucose was 188.90 mg/mL at 60 °C in 60 mins. The value of V_{max} was 3443.24 $\mu\text{mol/L/min}$ and the value of K_m was 60 g/L. Then, the highest velocity for the enzyme was at 60°C for 30 min, which was 21758.44 $\mu\text{mol/L/min}$. The rate of the reaction of enzyme can be determined by the Michaelis-Menten equation with different conditions of hydrolysis.

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INSCAPE: ALEGORI BANDAR DAN ALAM SEMULA JADI SEBAGAI KONTEMPLASI PENCIPTAAN LANDSKAP BAHARU DALAM KARYA SENI

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Abstrak: Kajian ini bertujuan untuk mengungkapkan hasil imaginasi dan daya kontemplasi penyelidik dalam penciptaan landskap baharu melalui penghasilan karya seni. Penelitian yang menjadi dasar dalam penciptaan pengkaryaan ini adalah pandangan terhadap sempadan antara landskap bandar dan alam semula jadi yang tidak jelas dalam konteks pembangunan. Perindustrian dan pembandaran yang pesat menyebabkan keunikan landskap alam semula jadi dan keindahannya telah beransur hilang dalam pandangan. Elemen-elemen ini menjadi katalis kepada pengkaji dalam mengekspresi pengalaman dan pandangan dalam karya seni. Siri lukisan ini menggambarkan dunia fantasi yang kompleks dengan pelbagai gabungan dan perlanggaran unsur semula jadi dan buatan manusia. Kajian ini menggunakan pendekatan dalam penelitian artistik iaitu penelitian berteraskan praktis studio (Studio Based Research). Proses penelitian ini mengaplikasikan tiga kaedah dalam model penciptaan karya oleh S.P Gustami (2007) dalam penghasilan karya kreatif.

Kata kunci: Seni, Lukisan, Alam Semula

Pengenalan

Istilah *inscape* merujuk segala bentuk objek dalam alam semesta ini mempunyai identiti dan keindahan sendiri (Akshay A.Yardi (n.d)). G.M. Hopkins menegaskan identiti ini tidak statik tetapi dinamik. Usaha dalam memahami persekitaran dan objek lain mendorong seseorang untuk menyedari keistimewaan tertentu yang akhirnya berbalik kepada pemahaman terhadap hubungan dan tujuan penciptaan. Menurut Tolstoy (1896), seni ialah alat komunikasi di mana ia memindahkan rasa emosi seseorang artis. Manakala Read (1959) pula mendefinisikan seni sebagai satu percubaan untuk mencipta bentuk dan bentuk yang mendatangkan keseronokan. Karya seni dalam penyelidikan ini adalah tindak balas terhadap persekitaran yang melibatkan penggabungan elemen bandar dan semula jadi. Perindustrian dan pembandaran yang pesat menjadikan landskap semula jadi yang sangat unik beransur hilang pada pandangan sehingga jurang sempadan antara bandar dan alam semakin ketara. Pelbagai konsep digunakan atas nama kemodenan tetapi sebaliknya landskap alam berubah kerana aktiviti manusia. Landskap moden yang kita lihat hari ini adalah landskap yang terpaksa menerima sesuatu yang asing di tempat asalnya. Landskap semula jadi diganti dengan landskap buatan manusia. Sehubungan itu, kajian dan pengkaryaan ini memerlukan imaginasi dan kontemplasi iaitu daya hayal yang baik dalam mengekspresikan pelbagai idea dalam karya seni. Proses ini adalah suatu proses kerja otak yang pernah merakam apa yang dilakukan, dirasakan, difahami dan didengar, seterusnya, membentuk emosi yang mewakili pengalaman subjektif untuk di ekspresikan pada permukaan karya. Siri lukisan ini tidak menggariskan landskap bandar di Malaysia. Sebaliknya, pengkaryaan memaparkan sentimennya tentang apa yang dirasakan dalam konteks idea atau cadangan untuk memperkenalkan landskap alam semula jadi yang terasing ke dalam persekitaran bandar.

Tinjauan Literatur

Ciri-ciri urbanisasi moden, interaksi antara bandar dan persekitaran global adalah aspek yang mengubah landskap dengan cepat. Era dalam abad pembandaran kini akan mentakrifkan ciri sosial, ekonomi dan alam sekitar. Menurut Seto, KC, Rodriguez, RS, dan Fragkias, M (2010) dalam jurnal mereka *Contemporary Urbanization and the Environment*, menurut saintis kita kini hidup dalam zaman *Anthropocene* iaitu manusia semakin mendominasi terhadap bio-giofizik bumi atau impak luar biasa akibat aktiviti manusia terhadap bumi. Perkembangan pesat yang tidak terurus telah menjejaskan iklim dan ekologi bandar dengan teruk. Hal ini cenderung mengakibatkan kawasan bandar yang padat penduduk dengan kawasan yang kecil dan terhad, jalan raya yang sempit dan akhirnya kawasan landskap hijau semakin berkurangan. Menurut Gurung, M.M (2014), alam dan bandar sebenarnya saling memerlukan antara satu sama lain. Oleh itu, kita harus melakukan sesuatu sebagai penghargaan, tanggungjawab, dan pemeliharaan kita untuk meletakkan, memasukkan, dan memulihkan unsur-unsur alam semula jadi di dalam bandar. Manakala dalam konteks seni, sejak tamadun awal, kita sebenarnya telah diilhamkan oleh segala yang merentasi kehidupan kita. Seni visual mereka diinspirasi daripada pelbagai sumber dan untuk pelbagai sebab; motif, rasional, niat, ritual, upacara atau tradisi budaya (Abdelbaky, F.S, 2017). Dalam konteks bandar pula, sememangnya ia bukanlah hal baru dalam bidang seni. Ia telah menjadi inspirasi kepada ramai pelukis sejak awal dalam menggambarkan pelbagai pemandangan kota. Namun permulaan lukisan landskap bandar boleh dikesan kembali pada zaman dunia purba. Menurut Abdelbaky, F.S (2017), tiada tarikh yang tepat untuk penciptaan bandar pertama atau permulaan lukisan mengenai pemandangan kota. Karya-karya awal, sebaliknya, berasal dari abad pertama di Rom Purba. Ia adalah lukisan dinding seluas 10-meter persegi di Trajan's Baths (**Gambar 1**). Ia menggambarkan pandangan bandar dalam bentuk *bird's eye*, di mana kita boleh melihat dengan jelas gambaran teater, kuil, arca, dan kediaman. Manakala dalam lukisan kontemporari, banyak menyiratkan pemandangan bandar di mana kebanyakan artis mempunyai minat dalam spesifikasi elemen baharu bandar moden, seperti karya Fernand Leger, Robert Delaunay, Joan Mitchell, Edward Hopper, dan ramai lagi. (Abdelbaky, F.S, 2017). Dalam Arnheim, (1969) dan dijelaskan oleh Abdelbaky, F.S (2017) bahawa semua perhatian pelukis abad ke-20 tertumpu pada karya seni abstrak sehingga lukisan realistik dan separa abstrak pemandangan bandar semakin berkurangan. Dalam menggambarkan idea yang kompleks, salah satu naratif atau konsep yang sesuai digunakan adalah alegori. Menurut Taggart (2020) artis menggunakan alegori dalam lukisan seperti cinta, kehidupan, kematian, moral dan keadilan melalui simbol visual dan metafora. Alegori ialah naratif atau perihalan di mana watak, peristiwa, atau simbol mendedahkan makna atau mesej yang tersembunyi. Manakala Simbolisme ialah kaedah mewakili idea atau cerita melalui simbol, memberikan mereka makna simbolik dan bukannya literal (Yadav, P, Bhandari, S (n.d)). Artis yang menggambarkan alegori dalam karya seni mereka yang paling terkenal, seperti '*Primavera*' karya Sandro Botticelli (1482), '*Leda and the Swan*' karya Jean-Leon Gerome (1895), '*The Alchemist*' karya Pieter Brueghel the Younger, (1558) dan Angelo Bronzino, '*Venus, Cupid, and Envy*,'(1548–1550) (Taggart, E, 2020). Oleh itu, pengkarya perlu memahami idea yang ingin di sampaikan bagi memudahkan penggunaan subjek alegori yang bersesuaian berdasarkan konteks.



Gambar 1: *The Baths of Trajan*

Sumber: Fayrouz Samir Abdelbaky (2017).

Beberapa karya seniman Malaysia dan Barat yang menjadi rujukan penyelidikan ini seperti karya Pago-Pago karya Latiff Mohidin (1960-1969). Pago-Pago ialah cara berfikir dan pandangan yang menentang atau mencabar modenisme Barat pada masa itu. Kemudian ia diketuai oleh Latiff dalam meneroka pendekatan sinkretik dalam seninya dan terlibat dalam perbincangan dengan pemikir avant-garde Asia Tenggara yang lain. Karya Latif diinspirasi daripada alam semula jadi dan seni bina Asia yang dilihat semasa pengembaraannya. Lukisan Pago-pago menampilkan perasaan pergerakan yang bertenaga dan permainan unsur buatan manusia dan organik. Manakala Yusof Ghani, "Ulu Yam; Hijau, Teluk Kemang" (2001), media campuran di atas kanvas, adalah untuk membangkitkan isu alam semula jadi yang mencerminkan aktiviti manusia dan gambaran warna sebagai pemahaman alam itu sendiri. Kemudian, Roberto Matta, '*mental cosmos*' (1991). Karya Matta menggunakan teknik abstrak, kiasan dan permainan ruang pelbagai dimensi untuk mencipta landskap kosmik yang rumit yang dirujuknya sebagai 'Morfologi Psikologi' atau '*inscapes*', yang merupakan penerokaan percampuran dunia dalaman dan luarnya. Robert Proch, Altar (2012). Karya Proch digambarkan sebagai naratif yang "meneroka keadaan manusia semasa menggunakan warna terang dan emosi yang nyata. Akhirnya, 'The City Rises' (1911) oleh Umberto Boccioni, menunjukkan tapak pembinaan di pinggir Milan sebagai karyanya. persepsi visual bandar moden baharu yang masih dalam pembinaan di mana lelaki, kuda dan alat-alat mesin pembinaan menggambarkan sedang bekerja dengan gigih.

Metodologi

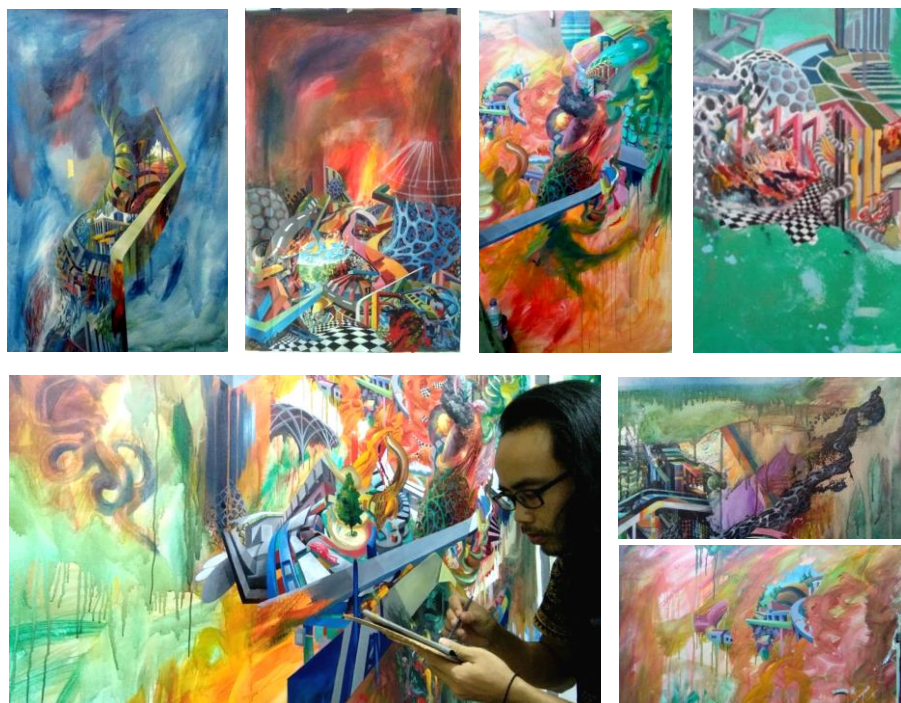
Penyelidikan ini menggunakan pendekatan kualitatif yang berteraskan praktis studio (penelitian artistik) dan menggunakan tiga kaedah proses kreatif dalam penciptaan karya oleh S.P Gustami (2007). Beliau menggariskan proses penghasilan karya ini kepada tiga peringkat iaitu eksplorasi, perancangan dan perwujudan dan enam langkah dalam proses penciptaan karya. Pada peringkat eksplorasi terdapat dua langkah iaitu proses pengambaran jiwa, tinjauan lapangan, penggalian sumber rujukan dan maklumat dan kedua ialah mencari landasan teori, sumber, rujukan, acuan visual yang boleh digunakan sebagai bahan analisis. Peringkat kedua, perancangan di mana langkah ketiga akan dilaksanakan iaitu pencarian konsep, mengekspresikan idea hasil dari analisis pada peringkat awal dan langkah keempat ialah visualisasi gagasan idea dan dihasilkan dalam bentuk model *mock-up*. Peringkat ketiga pula

adalah tahap perwujudan iaitu pelaksanaan karya akhir berdasarkan model *mock-up* sebagai langkah kelima dan yang keenam adalah penilaian iaitu karya akhir akan di pameran atau dinilai. Tahap penilaian bertujuan untuk menentukan mutu hasil kerja atau melalui apresiasi seni. Penilaian boleh dilakukan dalam bentuk pameran yang mencetuskan pelbagai respon daripada orang ramai. Perkara yang dinilai dalam peringkat penilaian kerja merangkumi aspek fizikal dan bukan fizikal. Aspek fizikal merangkumi bentuk dan fungsi karya (dalam seni gunaan), manakala aspek bukan fizikal pula merangkumi makna dan mesej yang tersirat dalam karya berkenaan. Dalam penelitian kajian ini pengkarya sendiri juga menjadi bahan rujukan dalam membentuk perasaannya sendiri melalui pengalaman yang subjektif. Selain menjadikan ruang studio sebagai rujukan dalam pengembangan idea, perancangan dan penerokaan.



Gambar 2: Proses pengkaryaan (Tahap pertama) dalam siri *Chrysalis*

Pada tahap ini, pengkarya menyimbah kanvas dengan pigmen warna yang minimum dan sangat cair dan membiarkan bentuk-bentuk spontan muncul pada permukaan canvas. Ini adalah proses pembentukan dan pertembungan warna yang menghasilkan bentuk yang tidak teratur. Pembentukan warna secara tidak sengaja mencipta imej mistik berdasarkan hasil ekspresi warna yang kemudian memerlukan negosiasi, perancangan dan pembinaan semula pada celahan warna yang abstrak.



Gambar 3: Proses pengkaryaan (Tahap kedua) dalam siri *Chrysalis*

Proses kedua adalah lebih kepada proses yang teratur di mana penyelidik perlu merenung, menghayati, berimajinasi dan berkontemplasi dengan bentuk-bentuk spontan yang muncul pada permukaan canvas. Bentuk-bentuk tersebut mempunyai karakter yang tersendiri yang membolehkan pengkarya membina imej lain di dalamnya atau memasukkan imej baharu di celahan warna. Proses ini memerlukan daya imajinasi untuk menciptakan gambar samaada objek *representational* atau *non-representational*. Hal ini sememangnya memerlukan pengalaman dan penghayatan yang baik. Daripada proses ini, perubahan ketara berlaku dari segi teknik dan kadangkala merujuk kepada konvensional.

Dapatan Kajian

Subjek yang digambarkan dalam karya adalah *representational* atau *non-representational*, yang mencadangkan elemen bandar dan semula jadi. Gabungan proses dekonstruktif dan pembinaan semula landskap yang memerlukan daya imajinasi yang baik dalam menggambarkan imej baharu. Subjek dilukis dengan rupa dan bentuk yang dinamik dan perspektif yang multidimensi. Walaupun kawasan positif mungkin kelihatan ketara dan dinyatakan dengan lebih jelas, kawasan negatif adalah sama pentingnya secara menyeluruh kerana kedua pertembungan tersebut saling berinteraksi dan mempunyai hubungan dalam konteks persekitaran. Berbalik kepada istilah *inscape*, di mana pengkarya mencari keunikan dalam penglihatan dalamannya atau *internal form* melalui pengertian urbanisasi dan alam semula jadi. Terdapat pengalaman subjektifnya yang perlu di dedahkan pada permukaan karya.

Lukisan landskapnya adalah ekspresi dunia yang berubah-ubah di mana alam semula jadi berubah menjadi landskap asing yang baharu seolah-olah ia berkembang dan meletus sebagai suatu gambaran terhadap pandangan pengkarya tentang urbanisasi. Dari jarak dekat, ia seolah proses kerja pembangunan yang masih dalam pembinaan dan seolah alam semula jadi itu sendiri diandaikan terpisah daripada persekitaran binaan yang memerlukan harapan. Pengkarya tidak menentang pembangunan, tetapi menjadi seorang yang menyedari. Dalam konsep abstrak, pengkarya menyedari bahawa kita perlu memahami istilah organisasi seni positif dan negatif bagi mengelak daripada mengganggu matlamat *pictorial unity*. Jika perhatian ditujukan kepada imej positif dan gagal mempertimbangkan kawasan negatif di sekeliling, akibatnya, gambar tersebut mungkin kelihatan membosankan. Menggabungkan komposisi dengan kedua-dua kawasan positif dan negatif akan membantu mengurangkan masalah ini. Secara ringkasnya, kedudukan latar depan dianggap positif iaitu visual imej yang jelas, manakala kawasan latar belakang dianggap negatif iaitu ruang kesan calitan warna yang abstrak.



Gambar 4: Siri Chrysalis 'Mental Cosmos', Acrylic atas canvas, 74 cm x 115 cm, 2021.



Gambar 5: Siri Chrysalis '*Map of Mind*', Acrylic atas canvas, 132 cm x 163 cm, 2021.



Gambar 6: Siri Chrysalis '*Awakening the Heart of the Universe*', Acrylic atas canvas, 166 cm x 213 cm, 2021.

Kesimpulan

Pengkarya mewakili dan menumpukan pada pandangan dalamannya tentang persekitaran yang menggabungkan elemen fabrik bandar dan alam semula jadi dalam mencipta landskap baharu yang membawa audien dalam dunia fantasi yang kompleks. Pengkarya merangsang kreativiti semasa proses kreatif, di mana sifat ekspresif, imaginatif dan inovatifnya menjadi penggalak dalam penciptaan karya. Dalam proses penciptaan, pengkarya membawa pengaruh pengkaryaan yang pelbagai, daripada ekspresionisme abstrak dan abstrak, surealisme, dan realisme. Pengkaryaan ini melalui proses dekonstruktif dan memerlukan pembinaan semula ruang visual baharu yang dinamik. Pengkaryaan ini juga menolak konsep satu sudut pandang dalam karya dan subjek yang diciptakan adalah gabungan dan pertembungan diantara unsur semula jadi dan buatan manusia, paradoks, logik dan tidak logik, seolah terkurung dan memerlukan pembebasan. Visual yang dipersembahkan adalah seperti tenaga kosmos yang mendorong audien ke dunia warna, kedalaman dan perinciannya. Siri *Chrysalis* ini juga suatu paradigma dalam interaksi manusia dan persekitaran.

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PEMBELAJARAN TERADUN DALAM KALANGAN PENSYARAH TVET DI KOLEJ KOMUNITI

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Abstrak: Kajian ini bertujuan untuk meneliti pengalaman dan meneroka isu dan cabaran pelaksanaan pembelajaran teradun dalam kalangan pensyarah di kolej komuniti. Kajian secara kualitatif ini dijalankan dengan menggunakan pendekatan fenomenologi bagi menyelami pengalaman pensyarah yang telah mengalami pengalaman menggunakan kaedah pembelajaran teradun. Pengumpulan data adalah melalui temu bual separa berstruktur terhadap lima orang pensyarah unit teknikal di kolej komuniti untuk mendapatkan maklum balas. Kesahan protokol temu bual telah dijalankan menggunakan kesahan muka (face validity) dan kebolehpercayaan (trustworthiness) menggunakan kaedah triangulasi dengan pemerhatian dan semakan dokumen. Seterusnya maklumat daripada maklum balas peserta kajian dianalisis menggunakan kaedah Analisis Tematik (TA). Dapatan kajian menunjukkan bahawa pensyarah dari segi pengalamannya bersedia melaksanakan kaedah pembelajaran teradun tetapi memerlukan sokongan daripada jabatan dan institusi bagi mengatasi cabaran terutamanya kandungan mata pelajaran yang lebih kepada amali, kekurangan kemahiran dan halangan capaian internet. Dapatan kajian ini memberi implikasi terhadap teori dan model yang digunakan serta kepada pihak berkepentingan untuk menyokong pelaksanaan pembelajaran teradun dan menangani isu dan cabaran dalam pelbagai aspek yang dikemukakan oleh peserta kajian.

Kata Kunci: Pembelajaran teradun, Pensyarah, TVET, Kolej komuniti

Pengenalan

Pandemik Covid-19 menjadi faktor utama penyumbang kepada pelaksanaan pembelajaran teradun di kolej komuniti. Berdasarkan surat edaran makluman Jabatan Pendidikan Politeknik dan Kolej Komuniti (JPPKK) berkaitan Garis Panduan Pengoperasian Kolej Komuniti semasa dan pasca perintah Kawalan Pergerakan (PKP) bertarikh 29 Jun 2020, JPPKK telah mengarahkan pelaksanaan penyampaian PdP secara dalam talian iaitu merujuk kepada pendekatan secara Synchronous (Segerak) atau Asynchronous (Tidak Segerak) atau kombinasi kedua-dua pendekatan mengikut kesesuaian. Pensyarah juga perlu merancang dan melaksanakan aktiviti alternatif kepada pelajar yang mempunyai kekangan mengakses PdP.

Keadaan ini telah memberi kesan terhadap strategi dan pendekatan PdP di Kolej Komuniti Malaysia dan dilihat memberi cabaran kepada pensyarah kolej komuniti untuk mengajar mata pelajaran teknikal yang memerlukan pelajar melakukan pembelajaran secara praktikal dan hands-on (Jamain & Hussien, 2018). Perubahan ini bukan sahaja melibatkan proses PdP pelajar, tetapi juga persiapan yang diperlukan oleh setiap pensyarah, termasuk pengetahuan dan

kemahiran untuk merancang dan melaksana PdP dengan berkesan, sokongan institusi, kemudahan teknologi dan pembangunan kandungan pembelajaran yang bersesuaian (McGEE & Poojary, 2020).

Daripada statistik kajian pembelajaran teradun yang dinyatakan di dalam latar belakang kajian, terdapat juga kajian yang telah dijalankan di institusi pendidikan TVET seperti kajian kes yang dijalankan oleh (O'zadowicz, 2020) tentang pengubahsuaian pembelajaran teradun bidang kejuruteraan dalam pendidikan tinggi mendapati bahawa pengubahsuaian ini membawa banyak faedah kepada pelajar dan pensyarah kerana menarik dan berkesan, sesuai dengan masa kini yang realitinya berubah secara dinamik.

Daripada kajian-kajian yang telah dijalankan didapati masih kurang kajian dilaksanakan berkaitan pembelajaran teradun di institusi pendidikan berasaskan TVET terutamanya di institusi pengajian tinggi di Malaysia seperti kolej komuniti. Oleh itu, kajian ini adalah diperlukan bagi mengetahui secara realitinya pengalaman dan isu dan cabaran penggunaan pembelajaran teradun dalam proses PdP dalam kalangan pensyarah kolej komuniti. Diharap kajian ini dapat memberi input yang berguna berkaitan situasi penggunaan pendekatan pembelajaran teradun di kalangan pensyarah TVET yang kebiasaannya menggunakan pendekatan secara bersemuka di dalam proses PdP.

Objektif Kajian

1. Meneliti pengalaman pelaksanaan pembelajaran teradun dalam kalangan pensyarah di kolej komuniti.
2. Meneroka isu dan cabaran penggunaan pembelajaran teradun dalam kalangan pensyarah di kolej komuniti.

Tinjauan Literatur Pembelajaran Teradun

Pendekatan pembelajaran teradun mempunyai potensi yang baik dan merupakan permulaan dalam melakukan pembaharuan dalam proses PdP kerana percampuran pendekatan antara bersemuka dan dalam talian dilihat dapat memberi satu suasana yang efektif terutama dalam konteks PdP (Abdul Ghani et al., 2019). Oleh itu, pembelajaran teradun seharusnya digunakan secara meluas untuk meningkatkan pembelajaran aktif pelajar dan membina pengetahuan dengan rakan sebaya (Lin et al., 2017). Persekitaran pembelajaran teradun yang berkesan diperlukan dalam melakukan pendekatan pedagogi inovatif melalui penggunaan teknologi dalam pengajaran dan pembelajaran (Kintu et al., 2017). Pembelajaran teradun dilihat dapat membantu pendidik untuk menjadikan penyampaian pengajaran lebih banyak menarik, akses lebih pantas dan memudahkan penyusunan bahan pembelajaran. Di samping itu juga, pendekatan pembelajaran teradun dapat mengoptimumkan kecekapan pembelajaran dan meminimumkan pengajaran.

Cabaran Pelaksanaan Pembelajaran Teradun

Pembelajaran teradun berinteraksi dengan hampir semua aspek di dalam pendidikan tinggi, menyediakan peluang dan cabaran yang tidak dapat kita jangkakan sepenuhnya (Dziuban et

al., 2018). Kesulitan dalam pelaksanaan pembelajaran teradun disebabkan pelbagai halangan yang sering berlaku seperti penyediaan kemudahan dan infrastruktur internet yang masih tidak dapat menampung kapasiti dalam talian dan kelajuan internet yang tidak dapat memenuhi ketersediaan internet untuk pelajar dan pensyarah (Soomro et al., 2018; Dahmash, 2020; Irum et al., 2020). Pembelajaran teradun memastikan kebolehcapaian akses internet dengan mudah oleh pengguna. Kemudahan akses memberi pelajar ruang belajar sehingga mereka mempunyai motivasi dan minat untuk belajar tetapi jika akses itu rumit, ia akan menimbulkan halangan dalam pendidikan sehingga menjadi halangan dalam pembelajaran (Irum et al., 2020). Oleh itu, pelajar mesti mempunyai akses kepada bahan kuliah yang fleksibel dan mudah di dalam melaksanakan pembelajaran teradun. Kekangan sumber yang terhad juga seperti ketiadaan perisian dan perkakasan memberi cabaran kepada pendidik untuk menggunakan teknologi (Asad et al., 2020). Pengaruh dan peranan dilihat sederhana pada penerimaan dan penggunaan pendekatan pembelajaran teradun dalam kalangan pendidik (Yeop et al., 2019).

Metodologi Kajian

Kajian secara kualitatif ini dijalankan dengan menggunakan pendekatan fenomenologi bagi menyelami pengalaman pensyarah yang telah mengalami pengalaman menggunakan kaedah pembelajaran teradun. Pengumpulan data adalah melalui temu bual separa berstruktur terhadap lima orang pensyarah unit teknikal di kolej komuniti untuk mendapatkan maklum balas. Kesahan protokol temu bual telah dijalankan menggunakan kesahan muka (face validity) dan kebolehppercayaan (trustworthiness) menggunakan kaedah triangulasi dengan pemerhatian dan semakan dokumen. Seterusnya maklumat daripada maklum balas peserta kajian dianalisis menggunakan kaedah Analisis Tematik (TA).

Dapatan dan Perbincangan Kajian

Pengalaman Pelaksanaan Pembelajaran Teradun *Kesediaan*

Tema pertama yang wujud daripada kategori pengalaman ini adalah kesediaan. Kesediaan pensyarah dalam melaksanakan pembelajaran teradun amat penting bagi melancarkan proses PdP di kolej komuniti. Dapatan daripada analisis ini menunjukkan bahawa peserta iaitu pensyarah mempunyai tahap kesediaan yang pelbagai. Ini kerana terdapat peserta merasakan perbezaan ketara kaedah PdP berbanding sebelum ini iaitu hanya dilaksanakan secara bersemuka. Tahap kesediaan ini merujuk kepada kesediaan dalam menggunakan pendekatan pengajaran secara bersemuka dengan dibantu secara dalam talian. Hasil daripada temu bual mendapati maklum balas daripada Peserta Satu (P1), Peserta Dua (P2), Peserta Tiga (P3), Peserta Empat (P4) dan Peserta Lima (P5) adalah seperti berikut:

"...saya masih belum bersedia sepenuhnya untuk guna kaedah online ni kalau berbanding dengan bersemuka"(P1)

"....teradun ni boleh guna...tapi kena pastikan pelajar boleh datang bersemuka juga..."(P2)

"Saya telah bersedia...sebab saya ada sedikit pengetahuan dan pengalaman terdahulu...platform yang saya sedia guna ni..."(P3)

"Saya sentiasa bersedia untuk guna blended learning ni..."(P4)

"Kalau dah macam ni keadaan...memang kena bersedia la..."(P5)

Tahap kesediaan ini adalah disebabkan pengalaman baru bagi mereka menggunakan pendekatan pembelajaran teradun seperti maklum balas peserta berikut:

“Mengajar secara online ni satu yang baru bagi saya, persediaan untuk mengajar adalah minima buat masa sekarang.”(P1)

Berdasarkan maklum balas peserta (P2) tahap kesediaan peserta dalam menggunakan pembelajaran teradun khususnya secara dalam talian adalah disebabkan kekurangan pengetahuan dan kemahiran.

“...minta kawan-kawan ajar dan kongsi...kalau tahap tu kira sederhana lagi la.”(P2)

Bagi mengatasi masalah ini, terdapat peserta menyatakan bahawa perlu meneroka aplikasi dan software secara sendiri. Ini berdasarkan maklum balas daripada peserta berikut:

“Boleh la...sederhana...kena rajin explore sikit.”(P5)

Mereka yang pernah mengalami pengalaman semasa fasa awal pandemik Covid-19 lebih bersedia melaksanakan kaedah pembelajaran teradun walaupun penggunaan kaedah ini awalnya adalah disebabkan arahan dan bersedia dalam terpaksa. Terdapat juga peserta berpendapat bahawa pensyarah perlu bersedia menyesuaikan kaedah PdP berdasarkan situasi semasa dan mengikut kesesuaian kandungan mata pelajaran sebagai rasa tanggungjawab dan amanah disebabkan keperluan mendesak norma baru.

“...sekarang ni guna online sebab keperluan mendesak norma baru...menjadi tanggungjawab untuk guna kaedah ni...”(P2)

“Saya telah bersedia...sebab saya ada sedikit pengetahuan dan pengalaman terdahulu...platform yang saya sedia guna ni...”(P3)

Dapatan daripada temu bual yang telah dijalankan, terdapat peserta menunjukkan tahap kesediaan mereka yang tinggi dengan merancang PdP berdasarkan jadual PdPT dengan baik dan kreatif. Ini adalah disebabkan mereka boleh menggunakan platform dalam talian dengan baik dan mahir kerana telah mempunyai pengalaman menggunakannya.

“...maklumla macam awal Covid dulu...sebab pernah alami...sekarang ni untuk online saya sesuaikan la, yang lebih kepada teori...”(P3)

“...saya rasa lebih bersedia untuk melaksanakan PdP teradun berbanding pada awal tahun lalu.”(P4)

Secara kesimpulannya, walaupun majoriti peserta lebih menyukai kaedah PdP secara bersemuka tetapi rata-rata di kalangan mereka bersedia menggunakan kaedah pembelajaran teradun sebagai alternatif dalam proses PdP masa kini.

Tujuan Penggunaan

Dapatan kajian ini menunjukkan bahawa kebanyakan pensyarah menggunakan kaedah pembelajaran teradun khususnya secara dalam talian berbantuan teknologi berikutan tujuan

untuk penyampaian pengajaran dan pembelajaran teori dan amali akibat daripada pandemik Covid-19. Menurut Salsabila et al. (2020), teknologi dalam pendidikan menjadi sangat penting dalam proses pembelajaran terutama pada masa pandemik Covid-19 seperti mana kenyataan berikut:

- “...kalau sebelum covid ni secara bersemuka, bila dah covid ni secara teradun la...” (P1)*
“Kami sebelum covid kelas macam biasa...sekarang ni kena buat online pula...” (P2)
“...covid ni secara bersemuka dan online...” (P3)
“...sebelum PKP kelas dijalankan secara bersemuka...bila dah PKP ni PdP kena buat online...” (P4)
“...kami masa covid ni buat kelas online...” (P5)

Di samping itu, kaedah pembelajaran teradun secara dalam talian juga dilaksanakan adalah disebabkan oleh arahan daripada pihak pengurusan iaitu Jabatan Pengajian Politeknik dan Kolej Komuniti (JPPKK) untuk mengelakkan kelas secara bersemuka dijalankan untuk sementara waktu. Berdasarkan temu bual yang dijalankan respons mereka adalah seperti berikut:

- “...sebab arahan dari Timbalan Pengarah Akademik...” (P1)*
“...arahan wajib guna...JPPKK...” (P2)
“...memang berdasarkan arahan yang berkuat kuasa...daripada jabatan...” (P3)
“...JPPKK ada sedia untuk kami pensyarah dan pelajar akses untuk guna Microsoft 360...” (P4)
“...keputusan JPPKK yang buat...ada arahan kena la buat...” (P5)

Terdapat juga peserta menyatakan bahawa mereka tiada pilihan dan terpaksa menggunakan kaedah pengajaran di dalam talian di samping kebiasaan iaitu bersemuka. Hal ini juga adalah disebabkan oleh pengaruh rakan-rakan pensyarah yang telah menggunakannya.

- “...saya pilih kerana majoriti pensyarah guna...boleh terus rujuk kawan...” (P1)*
“...guna pun ikut rakan...” (P2)
“...tapi bila dah tak boleh bersemuka...ini saja opsyen...” (P5)

Menurut peserta juga, mereka terpaksa menggunakannya bagi mengelakkan pelajar tercicir dalam pembelajaran mereka kerana semua pelajar tidak dibenarkan hadir ke kolej komuniti sepanjang perintah kawalan pergerakan (PKP) dilaksanakan.

- “Setakat ni kelas secara online terpaksa diadakan bagi mengelakkan pelajar dari tercicir dalam pembelajaran...” (P1)*

Di samping itu, antara peserta juga menyatakan bahawa tujuan penggunaan kaedah pembelajaran teradun ini khususnya secara dalam talian adalah untuk menghabiskan silibus dan rancangan pengajaran yang telah ditetapkan. Kaedah secara dalam talian ini dilaksanakan dengan sebaik mungkin bagi mencapai objektif kursus.

- “...lagi satu sebab tanggungjawab untuk habiskan silibus...” (P2)*
“...cuba yang terbaik untuk mencapai objektif pembelajaran kursus...” (P4)

Berdasarkan maklumat yang diperolehi juga, peserta menggunakan aplikasi dan platform dalam talian sebagai medium terbaik untuk melaksanakan proses pengajaran secara *Synchronous* dan *Asynchronous* pada masa sekarang. Ini berdasarkan respon berikut:

"...saya guna Google Classroom untuk memberi nota, tugas, kuiz dan ujian..."(P1)

"...saya guna Google Classroom dan aplikasi Telegram..."(P2)

"...banyak juga Google Classroom boleh buat...mesra pengguna..."(P3)

"...untuk sampaikan maklumat saya guna platform Google Classroom dan Telegram..."(P4)

"...kalau untuk Synchronous, saya guna platform Google Meet...Asynchronous guna Telegram..."(P5)

Penggunaan platform-platform dalam talian ini dipilih adalah disebabkan memberi kemudahan kepada pelajar dalam proses PdP.

"...mudah untuk pelajar...telefon pun boleh guna...pelajar pun sudah mahir guna..."(P4)

Oleh itu, semua peserta dilihat menggunakan kaedah pembelajaran secara dalam talian ini adalah bertujuan untuk memudahkan proses pengajaran dari segi rekod pengajaran, penyampaian bahan dan nota serta melaksanakan penilaian.

"Saya beri video-video berkaitan dengan pembelajaran...untuk pelajar tengok..."(P1)

"...untuk bagi bahan..."(P2)

"...guna Google Form buat soalan dan penilaian pelajar online..."(P3)

"...untuk sampaikan maklumat saya guna platform Google Classroom...nak uji kefahaman pelajar saya guna Quizziz dan Kahoot..."(P4)

"...saya banyak kongsi nota...buat tugas yang bersesuaian...penilaian yang kita buat secara online..."(P5)

Penggunaan kaedah pengajaran dalam talian adalah untuk membantu kefahaman pelajar dan menarik minat mereka semasa proses PdP berdasarkan pendapat:

"...saya memperbanyakkan bahan pembelajaran secara interaktif untuk menarik minat pelajar..."(P1)

"...saya suruh pelajar rujuk Youtube...boleh la bantu sikit..."(P2)

"...sedikit sebanyak membantu pemahaman pelajar..."(P4)

"...saya guna Kahoot dan Quizziz untuk tarik minat pelajar dan buat kelainan..."(P4)

Dapatan analisis temu bual yang telah dijalankan ke atas lima orang peserta menunjukkan bahawa para pensyarah perlu mempunyai kesediaan dalam melaksanakan mana-mana kaedah di dalam proses PdP. Dapatan ini selari dengan kajian Kuppusamy dan Norman (2021), yang menyatakan bahawa pendidik harus menyesuaikan diri dan bersedia menerima teknologi sebagai platform PdPT walaupun belum bersedia dari segi teknikal dan pengurusan secara sistematik. Ini kerana jika tahap kesediaan pendidik atau pensyarah terhadap sesuatu kaedah dalam proses PdP tidak memberangsangkan akan menyebabkan proses pelaksanaan PdP tidak dapat berjalan lancar dan mencapai objektif yang diharapkan.

Selain itu, seseorang pensyarah juga perlu menentukan tujuan penggunaan teknologi dalam membantu proses PdP yang dilaksanakan. Ini bagi memastikan penggunaan teknologi atau alat bantu mengajar adalah memberi manfaat dan keberkesanan penggunaannya secara optimum selari dengan pandangan Shaari (2011), yang menyatakan bahawa keutamaan penggunaan teknologi dalam pendidikan mestilah ditumpukan kepada keadaan-keadaan di mana teknologi memberi manfaat. Oleh itu, penggunaan teknologi adalah sebagai teknik penyampaian untuk tujuan meningkat dan merangsang minat dan motivasi pelajar sebagaimana pandangan peserta kajian ini.

Isu dan Cabaran Penggunaan Pembelajaran Teradun

Berkaitan isu dan cabaran yang dihadapi peserta kajian iaitu dalam menjawab soalan kajian kedua, beberapa tema telah dikenal pasti iaitu kemahiran teknologi, kemudahan, komitmen pelajar, kawalan pergerakan, silibus serta pengaruh dan sokongan.

Kemahiran Teknologi

Cabaran utama peserta dalam melaksanakan pembelajaran teradun adalah kekurangan kemahiran menggunakan teknologi dalam talian. Hal ini disebabkan oleh penggunaan pendekatan baru yang memerlukan masa untuk belajar sesuatu kemahiran kerana tidak mempunyai ilmu berkaitan aplikasi dalam talian. Oleh itu kebanyakan mereka tidak mahir menggunakannya dan memerlukan mereka meneroka melalui *Google* dan *Youtube* di samping bertanya kepada rakan-rakan pensyarah.

"...banyak kena belajar lagi...saya terpaksa belajar sendiri guna Google, Youtube dan bertanya rakan pensyarah yang lain..."(P1)

"...minta kawan-kawan ajar dan kongsi..."(P2)

"Maklumat saya dapat dari rakan-rakan sekerja...tapi teknik dan cara guna...saya belajar sendiri...cuba-cuba ikut Youtube..."(P4)

"...saya kebanyakan dapat dari Facebook..."(P5)

Di samping itu peserta juga mempunyai masalah untuk menyesuaikan penggunaan aplikasi dan platform dalam talian untuk penyampaian kandungan mata pelajaran dan menyediakan bahan aktiviti untuk PdP.

"...kaedah online masih baru...perlu masa untuk belajar guna...perlu masa untuk memahirkan diri guna aplikasi..."(P1)

"...untuk penilaian amali, kalau online tak boleh nilai langsung...kena tunggu kolej buka semula untuk buat amali..."(P2)

"...tapi untuk permulaan ni ambil masa sikit untuk sediakan bahan aktiviti PdP..."(P5)

Disebabkan cabaran ini, peserta menyatakan bahawa mereka memerlukan kursus dan perlu belajar berkaitan aplikasi yang sesuai dengan mata pelajaran teknikal.

"Saya rasa perlu kursus berkaitan aplikasi yang sekarang ni banyak orang guna dalam kelas online..."(P1)

"...tiada latihan kursus...tambah-tambah aplikasi untuk ajar teknikal..."(P2)

Oleh itu, peningkatan kemahiran penggunaan teknologi terutamanya aplikasi dan platform dalam talian untuk pensyarah diperlukan agar mereka tidak lepas tangan daripada melaksanakan PdP.

Kemudahan Teknologi

Kajian Mohd Amin dan Mohamad Nasri (2021), menyatakan bahawa masalah utama pelajar semasa proses PdP dalam talian ialah sambungan internet. Sementara itu, dalam kajian ini, masalah yang berlaku berkaitan dengan sambungan internet pelajar menjadi cabaran utama kerana liputan internet yang lemah dan sambungan yang tidak stabil yang dihadapi pelajar menyebabkan proses PdPT tidak dapat dilaksanakan dengan berkesan.

“Faktor internet memang main peranan...talian yang tidak stabil, sukar nak buat online.”(P1)
“Internet la...online ni memang kena talian internet laju...kita pensyarah tak dak masalah sangat...pelajar la dari segi data prepaid...pelajar ada masalah kalau nak akses internet di luar kolej.”(P2)

“...ambil kira halangan akses pelajar juga.”(P3)

“...akses internet sesetengah pelajar adalah terhad.”(P4)

“Pelajar la yang menjadi cabaran utama...masalah mereka kadang tiada line...akses internet, laptop komputer...susah sikit nak ajar...”(P5)

Di samping itu, kepelbagaian latar belakang pelajar dari segi sosio-ekonomi juga menyebabkan keperluan perkakasan untuk pembelajaran dalam talian tidak dapat dipenuhi. Ini adalah berdasarkan respons peserta seperti berikut:

“Cabaran banyak...antaranya kekangan kemudahan yang ada pada pelajar. Tiada komputer, laptop, data internet tak kuat...ada yang tak cukup...peralatan tak sesuai...antara masalah dan rungutan pelajar...”(P4)

Peserta juga menghadapi masalah dari segi kemudahan semasa melaksanakan pengajaran di rumah kerana kekurangan kemudahan berbanding apabila berada di pejabat seperti peralatan-peralatan amali yang hanya disediakan di bengkel-bengkel.

“...kebanyakan kelas secara online buat di rumah...keperluan kemudahan amat terhad kalau nak banding kemudahan di kolej komuniti.”(P1)

“...kalau nak ajar online susah...sebab di rumah...peralatan semua di bengkel.”(P2)

“...tapi sekarang cabaran bila PdP di rumah.”(P3)

“Kemudahan tu ada...di kolej complete la...rumah ni terbatas sikit.”(P5)

Dalam melaksanakan kaedah pembelajaran teradun di kolej komuniti, berapa isu dan cabaran yang perlu di ambil perhatian ditangani samada oleh pihak jabatan, pengurusan dan pensyarah itu sendiri. Antaranya ialah kemahiran pensyarah menggunakan teknologi, kemudahan yang disediakan untuk menyokong kaedah pembelajaran ini seperti kemudahan peralatan dan capaian internet.

Bagi menangani isu dan cabaran yang berkait dengan kemudahan dan kandungan silibus pula, juga menjadi tanggungjawab pihak berkepentingan termasuk pihak jabatan dan institusi bagi menyelesaikannya. Dengan penetapan visi dan perancangan penggunaan teknologi, kemudahan dan kandungan silibus di kolej komuniti perlu selari dan bersesuaian. Hal ini kerana pendekatan dalam talian adalah cara pensyarah menyampaikan maklumat dan kandungan secara maya yang memerlukan pelantar yang boleh digunakan untuk pengajaran digital di bilik darjah dan boleh menyokong kandungan silibus mata pelajaran yang bersifat teknikal.

Kemahiran pensyarah dalam mengintegrasikan teknologi dalam talian bersesuaian dengan kandungan secara tidak langsung dapat menarik minat dan komitmen pelajar untuk menyertai proses PdP. Penggunaan teks, grafik, video, pautan dan aktiviti penilaian yang interaktif menambahbaik kaedah pengajaran seterusnya meningkatkan minat dan memberi motivasi kepada pelajar terhadap kandungan pelajaran yang selari dengan kemajuan teknologi dalam era digital ini.

Dapatan Pemerhatian

Refleksi pemerhatian secara umumnya, mendapati bahawa peserta kajian menggunakan kaedah penerangan semasa menyampaikan isi pengajaran dan diselangi dengan soal jawab. Penerangan peserta tentang topik bersifat teori menggunakan bantuan bahan dan nota seperti paparan dokumen dan *slide power point*. Keadaan ini dapat membantu pelajar memahami kandungan mata pelajaran dan sedikit sebanyak mempengaruhi tahap penguasaan mereka terhadap sesuatu mata pelajaran yang diikuti. Manakala pelajar dilihat tidak banyak melibatkan diri secara aktif dalam pembelajaran. Mereka hanya mendengar penerangan pensyarah dan hanya memberi maklum balas apabila ditanya berkenaan isi pelajaran yang dipelajari. Sepanjang pemerhatian yang dijalankan tidak ada seorang pun pelajar mengajukan sebarang soalan kepada pensyarah berkenaan tajuk yang dipelajari. Keadaan ini menunjukkan corak pembelajaran lebih kepada berpusatkan kepada pensyarah.

Dapatan Semakan Dokumen

Daripada semakan dokumen borang refleksi PdPT juga menunjukkan bagaimana pendekatan PdPT dilaksanakan iaitu secara *Synchronous* ataupun *Asynchronous*. Antara catatan refleksi harian PdPT yang diperolehi daripada semakan dokumen ini adalah seperti berikut:

1. Pelajar masih baru dan belum biasa dengan PdPT, maka pensyarah hanya meletakkan nota di dalam platform *Google Classroom* sebagai bahan bacaan dan juga beberapa latihan untuk menguji kefahaman.
2. Seorang pelajar tidak menyertai *Google Meet* dan *Google Classroom* kerana masalah internet.
3. Pelajar diminta menyelesaikan tugas yang diberi pada kelas terdahulu. Kehadiran pelajar diambil melalui *Google Classroom*.
4. Pelajar yang sama masih mempunyai masalah internet.
5. Pelajar kurang memahami topik 2 memandangkan teori topik 1 masih belum dilaksanakan.
6. Perlukan kelas bersemuka untuk penerangan lanjut.
7. Nota diberi melalui *Telegram* dan pelajar memberi maklum balas baik.

8. Kuiz dilaksanakan dalam talian dan pelajar melaksanakan dalam tempoh yang ditetapkan.
9. Pelajar kurang memahami topik walaupun telah diberikan nota dan video.
10. Pelajar lebih cenderung menanda kehadiran tetapi tidak membaca nota yang diberi.

Daripada refleksi yang dicatat oleh peserta ini dapat dirumuskan bahawa terdapat masalah dari segi kemudahan internet, komitmen pelajar dan penguasaan pelajar untuk mata pelajaran teknikal.

Implikasi Kajian

Berdasarkan dapatan kajian juga menunjukkan bahawa pembelajaran teradun memerlukan kepada kemahiran pensyarah berkaitan teknologi dalam talian. Ini memberi implikasi secara langsung kepada pensyarah kolej komuniti sebagai pelaksana kurikulum. Kebanyakan pensyarah mempunyai pengalaman menggunakan teknologi secara bersemuka, tetapi kurang kemahiran menggunakan teknologi secara dalam talian. Latihan dan panduan penggunaan dapat membantu pensyarah dalam menggunakan kaedah PdP berasaskan teknologi dalam talian dengan berkesan. Pensyarah perlu bersedia dan berminat secara sendiri tanpa pengaruh ataupun desakan daripada mana-mana pihak untuk mengaplikasikan teknologi secara dalam talian bagi mengajar mata pelajaran teknikal yang dicadangkan. Latihan penggunaan asas media, aplikasi dan platform dalam talian memberi ruang dan keyakinan kepada pensyarah. Daripada dapatan kajian ini juga dapat dijadikan input kepada pihak berkepentingan mengesan kekurangan, kelemahan dan mengetahui punca masalah untuk diatasi dengan baik. Kesiediaan pensyarah sebagai pelaksana kurikulum memerlukan keyakinan dan semangat bagi merealisasikan hasrat bidang pendidikan negara.

Kesimpulan

Kajian ini telah mengemukakan jawapan kepada soalan kajian yang berkaitan dengan pelaksanaan pembelajaran teradun dalam kalangan pensyarah TVET di kolej komuniti. Ringkasan dapatan kajian dan perbincangan telah dilakukan bagi menjelaskan lagi objektif dan tujuan kajian. Kajian kualitatif ini telah dilaksanakan menggunakan pendekatan secara fenomenologi. Data dikumpulkan menerusi instrumen temu bual, pemerhatian dan semakan dokumen melibatkan lima orang pensyarah di kolej komuniti. Seterusnya data-data daripada temu bual yang telah ditranskrip, dianalisis dengan menggunakan kaedah Analisis Tematik. Perbincangan dapatan kajian adalah berdasarkan tema-tema yang terhasil berdasarkan kategori-kategori yang daripada tinjauan literatur. Terdapat dua implikasi utama hasil daripada dapatan kajian iaitu implikasi terhadap teori dan implikasi dapatan kajian,

Seterusnya daripada kajian ini dicadangkan kajian lanjutan untuk meneruskan penyelidikan dalam usaha mengembangkan ilmu pengetahuan dan mengetahui dengan lebih mendalam aspek-aspek pembelajaran teradun daripada sudut yang berbeza. Pengkaji berpendapat bahawa untuk mengetahui keberkesanan pembelajaran teradun, semua pihak harus memberi pendapat, bekerjasama menggembleng tenaga dan memberi sumbangan fikiran dalam rangka usaha membangunkan sistem pendidikan negara. Pihak jabatan dan institusi juga perlu bijak memanfaatkan kecanggihan teknologi dan alternatif yang ada zaman ini untuk manfaat pensyarah dan pelajar. Akhirnya, secara peribadi, pengkaji mengharap agar kelebihan

teknologi dapat digunakan sebaik mungkin dan memberi peluang kepada pensyarah dan pelajar terutamanya di kolej komuniti dalam pelaksanaan pembelajaran teradun. Segala isu dan masalah yang timbul perlu diperbaiki pada masa hadapan. Kita hanya mampu merancang dan berusaha, tetapi Tuhan yang menentukan kejayaan.

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KECERDASAN EMOSI DENGAN PRESTASI KERJA DALAM KALANGAN GURU SJK TAMIL

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Abstrak: Kajian ini bertujuan untuk mengenal pasti hubungan antara Kecerdasan Emosi dengan Prestasi Kerja Guru di Sekolah Jenis Kebangsaan Tamil. Kajian ini menggunakan kaedah kuantitatif berbentuk tinjauan. Seramai 196 orang guru dari Sekolah Jenis Kebangsaan Tamil di Daerah Kuala Muda Yan telah dipilih secara rawak sebagai sampel kajian ini. Instrumen kajian ini diadaptasi dari kajian lepas dan dibahagikan kepada dua bahagian iaitu Bahagian Kecerdasan Emosi dan Bahagian Prestasi Kerja Guru. Nilai kebolehpercayaan instrumen adalah tinggi iaitu Kecerdasan Emosi 0.87 dan Prestasi Kerja 0.89. Data kajian dianalisis dengan menggunakan statistik deskriptif dan inferensi. Dapatan kajian menunjukkan tahap kecerdasan emosi dan tahap prestasi kerja berada pada tahap tinggi. Dapatan analisis korelasi menunjukkan terdapat hubungan yang signifikan antara Kecerdasan Emosi dan Prestasi Kerja Guru dan hubungannya adalah positif dan sederhana. Dengan itu, dapat disimpulkan bahawa semakin tinggi tahap Kecerdasan Emosi dalam kalangan guru semakin tinggi tahap Prestasi Kerja Guru. Dapatan ini memberi implikasi positif terhadap pengurusan kecerdasan emosi dalam kalangan guru. Ini membolehkan guru menjalankan tugas dan tanggungjawab di sekolah dengan menunjukkan prestasi kerja yang tinggi. Dapatan ini menjelaskan bahawa pihak yang bertanggungjawab perlu merangka aktiviti yang sesuai dan sentiasa memberi sokongan berterusan untuk memastikan tahap kecerdasan emosi guru tinggi bagi meningkatkan tahap prestasi kerja guru.

Kata Kunci: Kecerdasan Emosi, Prestasi Kerja, SJKT, Guru

Pengenalan

Cabaran semasa yang dihadapi oleh guru memerlukan mereka untuk melengkapkan diri mereka dengan pelbagai pengetahuan, memperoleh kemahiran yang lebih baik, mematuhi kod etika guru dan mempunyai kemahiran sosial yang tinggi. Ciri-ciri ini sangat penting untuk mencapai kepuasan kerjaya, dan seterusnya membolehkan mereka memberikan komitmen yang kuat dalam memenuhi tugas dan tanggungjawab (Lonner, 1990).

Menurut Mohd Zainal Abidin, Mohd Asri, Loh Sau Cheong dan Zaharah Hussin (2017), terdapat pelbagai persepsi dan tuntutan yang berkaitan dengan profesion pengajaran hari ini. Sesetengah orang awam mempunyai tanggapan bahawa beban kerja dan tugas yang perlu dilakukan oleh guru tidak membuat pengajaran sebagai pilihan kerjaya yang menarik. Ini dapat dilihat menerusi angka permohonan bersara awal guru sejak kebelakangan ini. Sesetengah orang, sebenarnya, melihat sekolah sebagai sebuah organisasi yang merangkumi dengan

pelbagai beban kerja yang kadang-kadang muncul dari situasi yang tidak dijangka. Ini membuktikan bahawa pengajaran dianggap sebagai profesion yang sangat mencabar. Walau bagaimanapun, jika keadaan ini berterusan, pengajaran dan pembelajaran pastinya gagal mencapai matlamat yang diinginkan.

Beberapa kajian terdahulu menemui bukti untuk mengaitkan Prestasi Kerja kepada Kecerdasan Emosi. Kajian ini bertujuan menyumbang kepada kesusasteraan sedia ada untuk menambah kejelasan mengenai hubungan antara Prestasi Kerja dengan Kecerdasan Emosi (Cote & Miners, 2006). Hasil kajian Noorazzila Shamsuddin dan Ramlee Abdul Rahman (2014) menunjukkan bahawa 20% hingga 30% perkadaran kejayaan tempat kerja adalah disebabkan Kecerdasan Emosi dan pentadbir akademik. Oleh kerana mereka mempunyai Kecerdasan Emosi yang lebih tinggi melakukan lebih mahir; mereka berasa puas hati dengan pekerjaan mereka dan merasa setia kepada organisasi dan kerjaya mereka (Nor Aqilah Abd. Manaf, Shah Rollah Abdul Wahab, & Azlineer Sarip, 2021; Al Ali, Garner, & Magadley, 2012). Tambahan mereka dalam kajiannya, dimensi menggunakan emosi dan mengurus emosi dalam guru sangat rendah.

Menurut Muhammad Firdaus Muhammad Sabri, Haliyana Tonot dan Nurul Nadhirah Shahabudin (2017), kakitangan akademik dengan Kecerdasan Emosi yang tinggi mempunyai fungsi yang lebih baik di institusi mereka. Dengan kata lain, individu yang mempunyai Kecerdasan Emosi yang tinggi mempunyai prestasi yang unggul, kerana kecenderungan kecekapan Kecerdasan Emosi. Pada dasarnya, pentadbir akademik yang mengakui keyakinan dan emosi mereka mampu melaksanakan pekerjaan mereka dengan lebih cekap (Surin & Surat, 2021). Haslina Ahmad, (2013) melaporkan bahawa terdapat hubungan positif antara kecerdasan prestasi dan emosi. Oleh itu, kajian sebelumnya yang berkaitan mengesahkan bahawa pencapaian pekerjaan yang berkaitan dipengaruhi oleh Kecerdasan Emosi.

Satu kajian oleh Faozi, Zamora dan Anggraini (2017) menunjukkan bahawa 76.3% guru menyatakan ketidakpuasan mereka terhadap profesion kerana beban kerja yang berat yang perlu dilakukan setiap hari. Selain mengajar, guru-guru juga terlibat secara langsung dalam beberapa aktiviti di luar sekolah seperti kelas kokurikulum, sukan dan kelas tambahan. Che Amah @ Asmah Saleh (2016) telah menyatakan bahawa fenomena guru yang memutuskan untuk bersara awal sering dikaitkan dengan perubahan dalam kurikulum yang diperkenalkan dalam sistem pendidikan Malaysia. Perubahan itu dikatakan telah menyebabkan senarai tugas menjadi lebih lama dan guru ditekan dengan jangkaan yang lebih tinggi manakala keadaan lain tetap tidak berubah.

Berdasarkan dapatan kajian-kajian lepas, kajian ini bertujuan untuk mengenal pasti tahap Kecerdasan Emosi dan tahap Prestasi Kerja dalam kalangan guru dan hubungan antara Kecerdasan Emosi dengan Prestasi Kerja dalam kalangan guru.

Objektif Kajian

1. Menenal pasti tahap Kecerdasan Emosi dan tahap Prestasi Kerja dalam kalangan guru.
2. Menenal pasti hubungan antara Kecerdasan Emosi dengan Prestasi Kerja dalam kalangan guru.

Tinjauan Literatur

Kecerdasan Emosi

Kecerdasan emosi adalah merupakan satu konsep yang moden dan nyata mempunyai kesan yang ketara terhadap kehidupan seseorang, dari segi cara berfikir, hubungan dan juga emosi. Interaksi antara perasaan dan fikiran adalah penting apabila membuat sesuatu keputusan atau membantu untuk berfikir dengan lebih jelas dan bijak (Surin & Surat, 2021; Manimozhi & Srinivasan, 2019). Kecerdasan emosi boleh dijadikan sebagai peramal yang penting kepada kecemerlangan prestasi pekerja di tempat kerja (Keri et al., 2017). Pandangan ini telah disokong oleh Noorazzila Shamsuddin dan Ramlee Abdul Rahman (2014) dengan menyatakan bahawa kecerdasan emosi boleh mempengaruhi tingkah laku pekerja dan seterusnya membantu mereka menyelesaikan tugas yang diberikan.

Prestasi Kerja

Prestasi kerja merujuk kepada tingkah laku atau sikap yang menunjukkan seseorang itu berhubungan dengan pekerjaannya dan kebiasaannya merujuk kepada tindakan dan tingkah laku di bawah kawalan seseorang individu yang menyumbang kepada matlamat organisasi (Rotundo & Sackett, 2002). Nor Aqilah Abd. Manaf, Shah Rollah Abdul Wahab dan Azlineer Sarip (2021) dan Nurul Hudani Md Nawi et al., (2015) mengesahkan bahawa prestasi kerja seseorang itu boleh dinilai melalui kestabilan emosinya, personaliti serta tingkah laku. Hal ini adalah kerana apabila seseorang pekerja berkemampuan untuk mengurus diri termasuk mempunyai kawalan emosi yang baik ia dijangkakan akan meningkatkan prestasi kerjanya.

Hubungan antara Kecerdasan Emosi dan Prestasi Kerja

Kecerdasan Emosi membina kreativiti inovatif dalam individu dan sebagai hasilnya, membantu dalam peningkatan Prestasi Kerja (Haslina Ahmad, 2013). Di samping itu, apa yang paling penting dalam proses Prestasi Kerja memudahkan komunikasi dalam organisasi yang merupakan fungsi Kecerdasan Emosi (Maizatul Haizan Mahbob, & Wan Idros Wan Sulaiman, 2015). Mencapai prestasi yang paling sesuai dianggap sebagai matlamat yang paling penting bagi semua organisasi. Oleh itu, organisasi dikehendaki menumpukan perhatian kepada Kecerdasan Emosi sebagai variabel yang mencabar untuk mempertahankan prestasi tinggi dan pembangunan keistimewaan kompetitif (Maulod, Piaw, Ahmad, Wei & Alias, 2017)

Muhammad Muhammad Firdaus Muhammad Sabri, Haliyana Tonot dan Nurul Nadhirah Shahabudin (2017) meneroka hubungan antara Kecerdasan Emosi dan Prestasi Kerja. Hasil kajian menunjukkan korelasi yang signifikan antara emosi kecerdasan dan Prestasi Kerja di kalangan pegawai. Selain itu, kajian menunjukkan bahawa selepas mengawal kebolehan mental dan sifat keperibadian umum, Kecerdasan Emosi menjelaskan varians tambahan dalam meramalkan Prestasi Kerja di kalangan pegawai.

Suzyliana Mamat (2015) menilai hubungan antara Kecerdasan Emosi dan komitmen organisasi di kalangan pegawai cukai di wilayah Ardabil. 320 soal selidik telah diedarkan di kalangan pegawai yang dipilih menggunakan persampelan rawak mudah untuk mengumpul data. Hasil kajian menunjukkan hubungan yang signifikan antara Kecerdasan Emosi dan komitmen

organisasi. Keamatan hubungan antara dimensi yang berbeza dari Kecerdasan Emosi dan komitmen organisasi didapati berbeza.

Che Amah @ Asmah Saleh(2016) menjalankan kajian untuk menentukan kesan Kecerdasan Emosi buruh terhadap Prestasi Kerja, kepuasan kerja dan komitmen di kalangan pekerja di industri Fars Province di Iran. Data daripada sejumlah 289 borang soal selidik yang digunakan telah digunakan untuk analisis. Kaedah kuesioner digunakan sebagai alat untuk mengumpulkan maklumat mengenai Kecerdasan Emosi pekerja, kepuasan kerja dan komitmen organisasi. Hasil kajian menunjukkan Kecerdasan Emosi pekerja secara positif dikaitkan dengan Prestasi Kerja yang digalas.

Metodologi Kajian

Kajian ini menggunakan kaedah kuantitatif berbentuk tinjauan. Seramai 196 orang guru dari Sekolah Jenis Kebangsaan Tamil di Daerah Kuala Muda Yan telah dipilih secara rawak sebagai sampel kajian ini. Instrumen kajian ini diadaptasi dari kajian lepas dan dibahagikan kepada dua bahagian iaitu Kecerdasan Emosi dan Prestasi Kerja guru. Nilai kebolehpercayaan instrumen adalah tinggi iaitu Kecerdasan Emosi 0.87 dan Prestasi Kerja 0.89. Data kajian dianalisis dengan menggunakan statistik deskriptif dan inferensi.

Dapatan dan Perbincangan Kajian

Demografi Responden

Jadual 1 menunjukkan seramai 196 guru telah mengambil bahagian sebagai sampel dalam kajian ini. Dapatan menunjukkan majoriti responden adalah guru perempuan iaitu seramai 142 (72.5%), manakala 54 (27.5%) orang guru adalah responden lelaki.

Jadual 1: Maklumat Demografi

Kategori	Frekuensi	Peratus (%)
Lelaki	54	27.5
Perempuan	142	72.5

Tahap Kecerdasan Emosi Guru

Jadual 2 menunjukkan min Kecerdasan Emosi guru adalah 4.23 dengan sisihan piawai sebanyak 0.235. Dapatan ini menjelaskan bahawa tahap Kecerdasan Emosi dalam kalangan guru di Sekolah Jenis Kebangsaan Tamil daerah Kuala Muda Yan, Kedah berada pada tahap tinggi. Kajian Myint dan Aung (2016) menyokong dapatan kajian ini. Seramai 2014 orang guru yang terlibat dalam kajian ini menunjukkan tahap kecerdasan emosi yang tinggi dengan nilai min sebanyak 4.86 dan sisihan piawai 0.263.

Jadual 2: Tahap Kecerdasan Emosi Guru

Variabel	Min	Sisihan Piawai	Interpretasi Tahap
Kecerdasan Emosi Guru	4.23	0.235	Tinggi

Tahap Prestasi Kerja Guru

Dapatan kajian (Jadual 3) menunjukkan tahap Prestasi Kerja guru berada pada paras yang tinggi dengan nilai min sebanyak 4.24 dengan nilai sisihan piawai sebanyak 0.47. Ini menunjukkan bahawa guru-guru di Daerah Kuala Muda Yan mempunyai tahap Prestasi Kerja yang tinggi. Dapatan kajian ini adalah selari dengan kajian oleh Nor Aini Mohd Noor, Jamal @ Nordin Yunus, & Maziana Murad. (2022) yang mendapati tahap prestasi kerja berada pada tahap tinggi (min = 4.11, sisihan piawai = 0.364)

Jadual 3: Tahap Prestasi Kerja Guru

Variabel	Min	Sisihan Piawai	Interpretasi Tahap
Prestasi Kerja Guru	4.24	0.47	Tinggi

Hubungan antara Kecerdasan Emosi Guru dengan Prestasi Kerja

Analisis korelasi pearson menunjukkan bahawa terdapat hubungan yang signifikan antara Kecerdasan Emosi dengan Prestasi Kerja dalam kalangan guru Sekolah Jenis Kebangsaan Tamil di Daerah Kuala Muda Yan dan hubungannya adalah kuat dan positif. Dapatan kajian ini adalah selari dengan dapatan kajian Khukrit, Thanin dan Malai (2018) dengan menyatakan bahawa kecerdasan emosi mempunyai hubungan yang rapat dengan prestasi kerja yang ditunjukkan oleh staf di sesebuah organisasi. Dapatan kajian Faozi, Zamora dan Anggraini (2017) juga meyokong dapatan kajian ini dimana menunjukkan bahawa guru-guru yang mempunyai kecerdasan emosi yang tinggi mempunyai tahap prestasi kerja yang lebih tinggi. Dapatan ini menjelaskan bahawa Semakin tinggi kecerdasan emosi dalam kalangan guru semakin tinggi prestasi kerja yang ditunjukkan.

Jadual 4: Hubungan Kecerdasan Emosi Dan Prestasi Kerja Guru

Variabel	Nilai r	Sig	Tahap Hubungan
Prestasi Kerja	0.609	0.000	Sederhana Kuat

Implikasi Kajian

- Guru dapat mengenali tahap kecerdasan emosi yang dimiliki dan juga hubungannya dengan tahap prestasi kerja. Dengan itu, ia memberi ruang kepada guru dalam meningkatkan lagi amalan kecerdasan emosi yang tersusun.
- Kecerdasan emosi dan prestasi kerja merupakan antara elemen yang penting dalam memastikan keberkesanan pengurusan sesebuah sekolah. Pihak pentadbir perlu menggalakkan guru-guru yang memiliki tahap komitmen yang rendah dalam meningkatkan lagi. Pemimpin sekolah perlu menyusun langkah-langkah yang sesuai dalam memberi pendedahan kepada guru dalam meningkatkan lagi tahap kecerdasan emosi dengan memberi penekanan terhadap dimensi yang kurang diberi tumpuan oleh golongan guru.
- Menjadi input kepada pihak kementerian dalam menjadikan sebagai panduan bagi menyusun langkah bagi memastikan semua guru dalam menekankan aspek kecerdasan emosi dan prestasi kerja yang ditunjukkan oleh guru.

Kesimpulan

Kajian ini bertujuan mengenal pasti tahap Kecerdasan Emosi Guru, tahap Prestasi Kerja Guru dan hubungan antara Kecerdasan Emosi dengan Prestasi Kerja guru. Dapatan kajian menunjukkan tahap Kecerdasan Emosi dan Prestasi Kerja dalam kalangan guru berada pada tahap yang tinggi. Hasil analisis korelasi Pearson telah menunjukkan terdapat hubungan yang signifikan antara Kecerdasan Emosi dengan Prestasi Kerja guru.

Dapatan ini menjelaskan bahawa peningkatan Kecerdasan Emosi turut menyebabkan peningkatan Prestasi Kerja Guru. Selaras dengan hasil kajian ini, semua pihak terutamanya, guru-guru harus mengenali kepentingan Kecerdasan Emosi dalam mengurus diri dan menyediakan diri bagi menonjolkan keperibadian yang berkesan di sekolah. Guru juga harus bijak dalam mengenali kepentingan kecerdasan emosi.

Pihak pentadbir dan pihak di peringkat pengurusan di Pejabat Pendidikan, Jabatan Pendidikan Negeri dan Kementerian Pendidikan Malaysia perlu menyusun langkah-langkah yang sesuai dalam memberi input dan informasi berkaitan dengan Kecerdasan Emosi yang sesuai dalam kalangan guru. Ini dapat memastikan peningkatan Prestasi Kerja Guru dan menyumbang kepada keberkesanan pengurusan sesebuah sekolah.

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KEBERKESANAN PENGGUNAAN APLIKASI SBITP_ME TERHADAP KURSUS DFT20083 SECURITY BASIC AND IT PROFESSIONAL DI POLITEKNIK BALIK PULAU

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Abstrak: Aplikasi pembelajaran mudah alih merupakan salah satu medium penting dalam memastikan proses pembelajaran dan pengajaran (PdP) berjalan dengan lancar dan efektif. SBITP_Me dibangunkan bagi membantu pelajar mencapai hasil pembelajaran bagi Kursus DFT20083 Security Basic dan IT Professional. Aplikasi ini memfokuskan kepada Topik 4: IT Professionalism and Ethics yang kebanyakan pelajar sukar untuk memahami topik ini semasa proses pembelajaran. Justeru itu, kajian ini adalah bertujuan untuk mengkaji keberkesanan penggunaan aplikasi SBITP_Me terhadap pelajar Semester 2, Jabatan Teknologi Maklumat dan Komunikasi (JTMK), Politeknik Balik Pulau dalam peningkatan aras kefahaman pelajar bagi topik IT Professionalism and Ethics dalam Kursus Security Basic dan IT Professional (DFT20083). Objektif bagi kajian ini ialah mengkaji tahap keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 Security Basic and IT Professional. Kajian ini dijalankan terhadap dua buah kumpulan iaitu pelajar kumpulan kawalan dan pelajar kumpulan rawatan. Kaedah kuantitatif telah dipilih dan digunakan untuk mengutip dan menganalisis data kajian. Sampel kajian pula terdiri daripada 188 pelajar Semester 1 2022/2023 dan 74 orang pelajar Semester Pendek 2022. Dapatan kajian diukur melalui peningkatan dan perbandingan peratusan bagi hasil pembelajaran kursus CLO3A dalam Laporan Semakan Hasil Kursus (CORR). Secara kesimpulannya, kajian ini menunjukkan peningkatan aras kefahaman pelajar mengenai topik IT Professionalism and Ethics bagi Kursus DFT20083 Security Basic dan IT Professional.

Kata kunci: Alat Bantu Mengajar, Aplikasi, Mudah Alih, SBITP_Me, Pembelajaran Dan Pengajaran, Politeknik

Abstract: A mobile learning application is one of the significant medium to ensure teaching and learning (T&L) process runs smoothly and effectively. SBITP_Me was developed to help students achieve learning outcomes for the DFT20083 Security Basic and IT Professional Courses. This application focuses on Topic 4: IT Professionalism and Ethics which most students find hard to understand during the learning process. Hence, this study aims to examine the effectiveness of the use of SBITP_Me application for Semester 2 students of Department of Information and Communication Technology (JTMK), Politeknik Balik Pulau in increasing students' level of understanding of the IT Professionalism and Ethics topic in the Security Course Basic and IT Professional (DFT20083). The objective of this study is to examine the effectiveness of using the SBITP_Me application as a teaching aid in improving students' understanding of the DFT20083 Security Basic and IT Professional course. This study was

conducted on two groups, namely students in the control group and students in the treatment group, and quantitative methods were chosen to collect and analyze the data. The study sample consisted of 188 students of Semester 1 2022/2023 and 74 students of Short Semester 2022. The results of the study were measured through the comparison and percentage increase of the course learning outcomes of CLO3A in the Course Outcome Review Report (CORR). In conclusion, this study shows an increase in students' level of understanding on the topic IT Professionalism and Ethics for the DFT20083 Security Basic and IT Professional Course.

Keywords: Teaching Aid, E-Learning Application, Mobile, SBITP_Me, Teaching and Learning, Politeknik

Pengenalan

Kaedah pengajaran dalam era digital kini tidak lagi hanya bergantung kepada nota statik yang berpusatkan kepada pensyarah semata-mata. Sebaliknya pembelajaran berpusatkan pelajar yang merupakan konsep pembelajaran abad ke-21 memberi penekanan kepada pelaksanaan kurikulum baharu menggunakan teknologi dan kebolehan pelajar sendiri untuk mencapai aras yang lebih tinggi daripada gaya pembelajaran tradisional (Overby, 2011). Selain itu, pensyarah perlu mengaplikasikan pelbagai teknik pengajaran bagi mencipta persekitaran pembelajaran yang lebih dinamik dan efisien (Almaraz-López et al., 2023). Melalui penguasaan kemahiran yang pelbagai ini, pensyarah berada dalam keadaan bersedia untuk mendepani cabaran dalam proses pengajaran dan pembelajaran (PdP). Selari dengan itu, penerapan strategi penyampaian yang pelbagai memberi peluang kepada pelajar untuk berkembang secara holistik dan memperolehi pengalaman yang berguna pada masa akan datang.

Sejajar dengan perkembangan teknologi masa kini, aplikasi pembelajaran mudah alih dilihat sebagai medium penting dalam menyokong pelaksanaan aktiviti pembelajaran. Aplikasi pembelajaran mudah alih bersifat fleksibel dari segi masa serta dimana pelaksanaan pembelajaran tersebut berlaku. Capaian yang mudah kepada aplikasi ini memberi faedah dan kemudahan kepada pelajar yang mempunyai kekangan seperti masa dan lokasi. Menurut Downes (2005), aplikasi mudah alih dalam pembelajaran bukan hanya berfungsi sebagai sistem penyampaian bahan pembelajaran, malah boleh digunakan sebagai asas untuk aktiviti pendidikan. Penggunaan aplikasi ini akan menghidupkan suasana kelas yang pasif serta secara tidak langsung mampu meningkatkan motivasi dalam kalangan pelajar (Tosun & Tosun, 2019). Selain itu, aplikasi ini juga mampu membantu pemahaman pelajar lebih-lebih lagi bagi subjek yang memberatkan teori seperti DFT20083 *Security Basic and IT Professional*. Oleh itu, Aplikasi SBITP_Me dibangunkan dengan akses secara maya ini dapat membantu pelajar dalam mencapai hasil pembelajaran mengikut sukatan pembelajaran yang telah ditetapkan.

Penyataan Masalah

Perkembangan teknologi globalisasi kini semakin bergerak pantas dalam pelbagai bidang termasuklah sektor pendidikan. Dapat dilihat, dengan peningkatan dan kemajuan teknologi telefon pintar, penggunaan aplikasi di telefon mudah alih adalah menjadi satu budaya ataupun *trend* pada masa kini. Penggunaan aplikasi pembelajaran mudah alih secara meluas dalam sektor pendidikan pada masa kini membawa kepada penghasilan pelbagai bentuk aplikasi yang membantu memudahkan proses pembelajaran dan pengajaran (PdP) berlangsung. Aplikasi ini

mula menjadi pilihan para pengajar bagi memastikan proses pembelajaran dan pengajaran (PdP) menjadi lebih menarik dan efisien serta dapat dicapai di mana sahaja dan pada bila-bila masa tanpa had, serta dapat mewujudkan persekitaran pembelajaran yang berkesan untuk tenaga pengajar dan pelajar (Siti Nor et al., 2020).

Politeknik Balik Pulau (PBU) merupakan sebuah politeknik yang menawarkan Program Diploma Teknologi Maklumat (Teknologi Digital) selaras dengan keperluan negara ke arah negara maju dalam memasuki era Revolusi Industri 4.0. Semua pelajar Diploma DDT yang berada di semester 2 di Politeknik Balik Pulau wajib mendaftar kursus *Security Basics and IT Professional* (DFT20083) yang merupakan kursus teras bagi program ini. Kursus ini merupakan satu kursus yang agak membosankan pelajar dan mudah hilang fokus kerana ianya banyak melibatkan nota teori. Tambahan pula, salah satu topik dalam kursus ini iaitu topik 4 memerlukan pelajar melaksanakan satu pentaksiran iaitu *Problem Based Exercise (PBE)*. Pentaksiran ini melibatkan CLO3A dimana daripada hasil pembelajaran kursus ini, pelajar boleh mengamalkan kod etika profesional dan nilai kemanusiaan untuk menyesuaikan diri dengan cabaran sebenar dalam persekitaran profesional. Perkara ini amat penting agar membolehkan pelajar bersedia untuk menghadapi dunia persekitaran profesional sebelum menjalani Latihan Industri dan seterusnya memasuki alam pekerjaan kelak.

Tinjauan awal mendapati pada sesi 1 2021/2022 keputusan *Course Learning Outcome* (CLO), CLO3A adalah baik iaitu 87%. Namun, keputusan CLO3A bagi sesi Semester Pendek 2022 mengalami penurunan kepada 66%. Hasil tinjauan mendapati pelajar kurang memberikan penekanan terhadap topik 4 iaitu *IT Professionalism and Ethics*. Tinjauan awal pengkaji mendapati pelajar kurang fokus dan kurang faham mengenai topik ini tanpa bimbingan pensyarah. Selain itu, kekurangan bahan bantuan mengajar dan bahan rujukan yang interaktif juga merupakan faktor yang mengehadkan pelajar dalam melaksanakan pentaksiran dengan memuaskan. Keadaan ini seterusnya menyebabkan pengurangan minat dan motivasi pelajar dalam penghasilan pentaksiran mengikut kehendak soalan. Perkara ini amat membimbangkan para pensyarah kursus kerana hasil keputusan CLO3A yang berada di tahap kurang memuaskan dan menurun dari semester sebelumnya.

Justeru itu, satu tindakan penambahbaikan dijalankan oleh pengkaji untuk meningkatkan pemahaman pelajar dalam topik ini. Jadual 3.0 menunjukkan perbandingan hasil keputusan *Course Learning Outcome* (CLO), CLO3A bagi sesi 1 2021/2022, sesi 2 2021/2022 dan sesi pendek 2022.

Jadual 3.0: Perbandingan *Course Learning Outcome* (CLO3A) Bagi Sesi 1 2021/2022, Sesi Semester Pendek 2022 dan Sesi 1 2022/2023

	Sesi 1 2021/ 2022	Sesi Semester pendek 2022	Sesi 1 2022/ 2023
CLO3A			
- <i>Practice professional codes of ethics and humanistic values to adapt the real challenges in professional environment. (A2, PLO 8)</i>	87%	66%	82%

Berdasarkan analisa CORR, *Course Learning Outcome* (CLO3A) bagi program Diploma Teknologi Maklumat (Teknologi Digital), kursus *Security Basics and IT Professional* adalah kurang memberangsangkan iaitu mencatat peratusan sebanyak 66% bagi sesi pendek 2022 berbanding 87% pada Sesi 1 2021/2022. CLO3A ini merupakan hasil pembelajaran kursus dari segi mempraktikkan kod etika profesional dan nilai kemanusiaan untuk menyesuaikan diri dengan cabaran sebenar dalam persekitaran professional.

Bagi menangani peratusan CLO yang kurang memuaskan ini, ia memberi ruang dan peluang kepada pensyarah kursus untuk menghasilkan alat bantu mengajar iaitu aplikasi mudah alih SBITP_Me untuk diaplikasikan dalam proses PdP bagi Sesi 1 2022/ 2023 dan mengkaji tahap keberkesanan penggunaan aplikasi ini dalam meningkatkan pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*.

Objektif Kajian

Kajian ini mempunyai satu (1) objektif utama yang berkaitan penyataan masalah kajian:

Mengkaji tahap keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*.

Persoalan kajian

Kajian ini dilaksanakan bagi menjawab persoalan kajian yang dibina berdasarkan objektif kajian iaitu:

Adakah terdapat perbezaan keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*?

Hipotesis Kajian

Kajian ini dilaksanakan bagi menjawab satu (1) hipotesis kajian yang dibina berdasarkan persoalan kajian iaitu:

Ho1: Tidak terdapat perbezaan yang signifikan terhadap penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*.

Kajian Literatur

Pembelajaran konvensional biasanya ditakrifkan sebagai pembelajaran dalam kelas bersama pensyarah di mana pensyarah bertanggungjawab untuk mengawal cara pembelajaran yang disampaikan. Pembelajaran secara elektronik atau *e-learning* yang menggunakan pendekatan teknologi digital pula telah menjadi semakin popular dan mendapat tempat dalam bidang

pendidikan dewasa ini. Dalam era dunia baru kini, penggunaan teknologi digital dalam bidang pendidikan telah menjadi tarikan utama di pelbagai peringkat pengajian termasuklah peringkat rendah, menengah mahupun peringkat lebih tinggi. Penggunaan peranti mudah alih masakini merupakan salah satu faktor utama yang menjadi pilihan penyampaian pendidikan selari dengan teknologi pendidikan masakini yang mana penyampaian maklumat pembelajaran juga lebih mudah sebagaimana dilihat melalui aktiviti perkongsian bahan pembelajaran di antara pelajar (Hamidah et al., 2019). Terdapat pelbagai platform digital yang tersedia untuk digunakan mengikut tahap literasi teknologi pelajar. Pada masa kini, penggunaan aplikasi mudah alih adalah salah satu platform yang paling kerap digunakan. Aplikasi mudah alih telah menjadi sebahagian daripada kehidupan harian manusia bahkan apabila teknologi semakin canggih. Aplikasi mudah alih merupakan aplikasi perisian yang dibangunkan khusus untuk digunakan pada peranti pengkomputeran kecil, seperti telefon pintar dan tablet, bukan untuk komputer meja atau komputer riba (Nur et al., 2021).

Banyak kajian telah dibuat oleh pengkaji-pengkaji sama ada di dalam atau luar negara berkaitan kelebihan dan kesan kepada pelajar dalam penggunaan kaedah pembelajaran dan pengajaran (PdP) yang berasaskan kepada aplikasi mudah alih ini. Menurut Kamal et al. (2019), aplikasi mudah alih membolehkan manusia untuk berkongsi maklumat secara meluas tanpa mengira tempat dan masa. Nur et al. (2021), juga menjelaskan bahawa aplikasi mudah alih boleh merangsang penglibatan pelajar menerusi aktiviti berorientasikan pengetahuan yang mana ia mampu merangsang motivasi pelajar untuk belajar secara sendiri kerana peralatan mudah alih seperti telefon pintar amat mudah digunakan dan mempunyai ciri-ciri yang menarik. Selain itu juga, ia turut dipersetujui oleh Santiago et al. (2022), penggunaan peranti mudah alih, berbanding dengan buku teks, mempunyai beberapa kelebihan antaranya ia memudahkan untuk belajar di mana-mana, mengelak daripada membawa bahan fizikal, buku, majalah, dan lain-lain. Pengkaji ini juga turut menyatakan bahawa terdapat buku yang boleh dimuat turun ke peranti mudah alih atau lain-lain yang tersedia dalam talian, tetapi kelebihan pembezaan aplikasi mudah alih adalah interaksinya yang menarik dan pengguna dapat menerima maklum balas dengan cepat dan di waktu itu juga. Berdasarkan kepada kajian oleh Johannes et al. (2022), aplikasi pembelajaran mudah alih boleh membantu pelajar mengatur dan menguruskan diri mereka dengan lebih baik, meningkatkan strategi pembelajaran mereka dan meningkatkan prestasi akademik mereka. Di samping itu, Johannes et al. (2022) juga mendapati bahawa penggunaan aplikasi mudah alih adalah untuk menyediakan kandungan dan memupuk motivasi pelajar, maka pendidik boleh secara aktif meningkatkan kejayaan pembelajaran pelajar. Beliau turut menjelaskan bahawa alat ini membolehkan pensyarah mengenali pelajar dengan lebih baik dalam cara mereka belajar dan menilai kefahaman pelajar dengan kandungan pembelajaran dengan memantau tahap kejayaan dalam latihan mengenai topik khusus. Hasil kajian oleh Norlaila et al. (2020) mendapati bahawa apabila pelajar menggunakan teknologi mudah alih dalam pembelajaran, pelajar akan mengalami peningkatan motivasi disamping membolehkan pelajar membuat ulangkaji secara sendiri dengan lebih mudah.

Metodologi Kajian

Metodologi ini menjadi satu garis panduan kepada pengkaji untuk memastikan proses kajian berjalan dengan lancar dan sistematik. Selain itu, pemilihan metodologi kajian yang tepat diperlukan bagi mendapatkan jawapan bagi segala persoalan dan objektif kajian (Nurawani,

2015). Untuk kajian ini, kaedah kuantitatif telah dipilih untuk mendapatkan data kajian kerana kaedah ini dapat memberikan bukti statistik (Hennessy & Patterson, 2012; Johnson & Christensen, 2010; Jones, 2013). Terdapat dua kumpulan dalam kajian eksperimen iaitu kumpulan kawalan dan kumpulan rawatan. Seterusnya, data yang diperolehi daripada kedua-dua buah kumpulan ini akan dianalisis dan dibuat perbandingan. Jadual 6.0 menunjukkan metodologi kajian yang telah digunakan dalam kajian ini.

Jadual 6.0: Metodologi Kajian

Sesi	Kumpulan Kajian	Pendekatan Pengajaran
Semester Pendek 2022	Kawalan	Pembelajaran Konvensional
1 2022/2023	Rawatan	Aplikasi pembelajaran mudah alih - SBITP_Me

Sampel Kajian

Kajian Jeffery (2018) mencadangkan agar kajian dijalankan ke atas populasi sasaran bertujuan agar objektif kajian dapat dicapai. Kenyataan ini turut disokong oleh kajian Ary, Jacobs dan Sorensen (2011) yang menjelaskan bahawa terdapat dua jenis populasi iaitu populasi sasaran dan populasi yang boleh dicapai. Oleh itu, dalam kajian ini, sampel populasi yang boleh dicapai iaitu populasi pelajar yang mengambil kursus DFT20083 *Security Basic and IT Professional* pada Sesi 1 2022/2023 dan Semester Pendek 2022.

Untuk menentukan sampel kajian, Fuad (2017) telah mencadangkan beberapa proses yang perlu dilakukan antaranya adalah kaedah persampelan. Bagi kajian ini, kaedah persampelan yang digunakan adalah persampelan bertujuan kerana kaedah ini dapat membantu untuk memilih sampel yang mempunyai ciri-ciri yang hampir sama dengan kumpulan sasaran (Darussalam & Hussin, 2016). Dalam kajian ini, seramai 74 orang pelajar kumpulan kawalan bagi Semester Pendek 2022, manakala seramai 188 orang pelajar kumpulan rawatan bagi Sesi 1 2022/2023 seperti dalam Jadual 7.0.

Jadual 7.0: Sampel Kajian

Sesi	Kumpulan Kajian	Jumlah Sampel
Semester Pendek 2022	Kawalan	74
1 2022/2023	Rawatan	188

Instrumen Kajian

Instrumen kajian merupakan sebuah alat yang digunakan bagi mencapai, mengukur, memerhati atau mendokumenkan objektif kajian yang telah ditetapkan (Firdaus et al., 2015). Justeru, bagi memastikan pengukuran terhadap objektif kajian dapat dicapai, pemilihan instrumen kajian yang tepat perlu dititikberatkan. Dalam kajian ini, instrumen kajian yang digunakan adalah Pentaksiran - *Problem Based Exercise* (PBE) yang meliputi topik yang keempat (4) iaitu Topik 4: *IT Professionalism and Ethics* kerana kajian ini adalah untuk melihat keberkesanan penggunaan aplikasi mudah alih SBITP_Me bagi kursus DFT20083 *Security Basic and IT Professional*.

Instrumen kajian ini akan digunakan oleh pelajar yang mengambil kursus DFT20083 *Security Basic and It Professional* pada sesi 1 2022/2023 (Kumpulan Rawatan) dan dibandingkan dengan pelajar yang mengambil kursus DFT20083 *Security Basic and It Professional* pada Semester Pendek 2022 (Kumpulan Kawalan) yang tidak menggunakan aplikasi mudah alih SBITP_Me dalam sesi pengajaran dan pembelajaran di Politeknik Balik Pulau. Jadual 8.0 menunjukkan intrumen kajian yang digunakan untuk mengutip data kajian.

Jadual 8.0: Instrumen Kajian

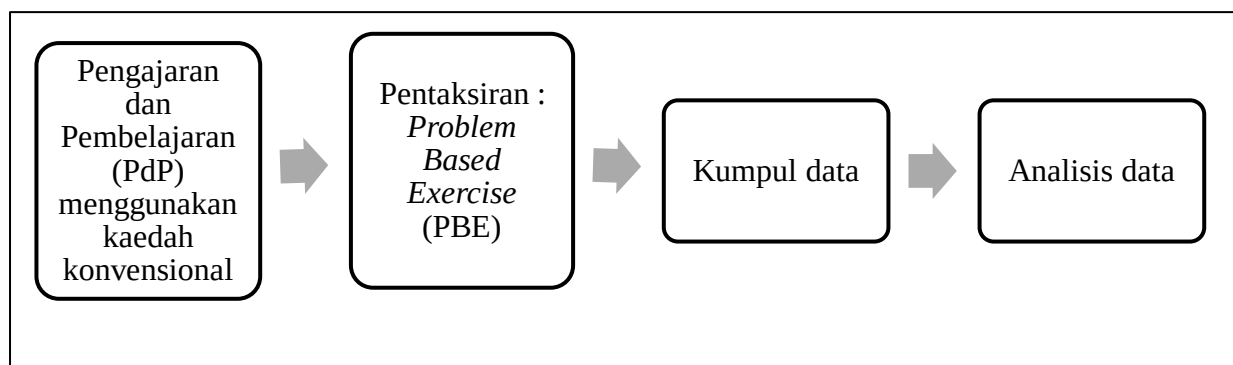
Kursus	Topik	Nama Instrumen	Sesi	Jumlah Soalan	Jumlah Markah
DFT20083 Security Basic and IT Professional	Topik 4: <i>IT Professionalism and Ethics</i>	Penilaian Berterusan :	Semester Pendek 2022	3	70
		<i>Problem Based Exercise</i> (PBE)	1 2022/2023	4	100

Prosedur Pengumpulan Data Kajian

Dalam kajian ini, dua (2) buah prosedur pengumpulan data telah ditetapkan bagi memastikan proses pengumpulan data dapat dilaksanakan dengan lancar dan memudahkan pengkaji untuk memastikan proses ini berlaku secara sistematik.

Prosedur Pengumpulan Data Kajian Kumpulan Kawalan

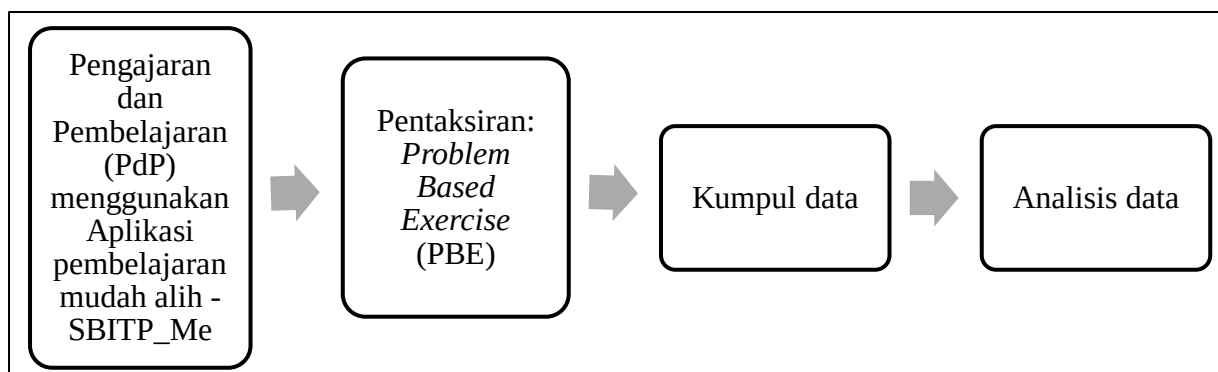
Bagi prosedur pengumpulan data bagi kumpulan kawalan adalah dirujuk seperti yang digambarkan dalam Rajah 9.1. Instrumen kajian Pentaksiran: *Problem Based Exercise* (PBE) yang mengandungi 3 buah soalan dengan markah keseluruhan sebanyak 70 markah telah diberikan kepada pelajar. Murid telah diberikan tempoh masa selama 8 jam untuk menyelesaikan kesemua soalan tersebut. Markah bagi pentaksiran tersebut telah direkod bagi tujuan analisis untuk mengukur keberkesanan penggunaan kaedah PdP secara konvensional bagi Topik 4: *IT Professionalism and Ethics*.



Rajah 9.1: Carta alir Prosedur Pengumpulan Data Kajian Kumpulan Kawalan

Prosedur Pengumpulan Data Kajian Kumpulan Rawatan

Prosedur pengumpulan data bagi kumpulan rawatan adalah dirujuk seperti yang digambarkan dalam Rajah 9.2. Instrumen kajian Pentaksiran: *Problem Based Exercise* (PBE) yang mengandungi 4 buah soalan dengan markah keseluruhan sebanyak 100 markah telah diberikan kepada pelajar. Murid telah diberikan tempoh masa selama 8 jam untuk menyelesaikan kesemua soalan tersebut. Markah bagi pentaksiran tersebut telah direkod bagi tujuan analisis untuk mengukur keberkesanan penggunaan kaedah PdP secara konvensional bagi Topik 4: *IT Professionalism and Ethics*.



Rajah 9.2: Carta alir Prosedur Pengumpulan Data Kajian Kumpulan Kawalan

Dapatan Kajian

Persoalan Kajian: Adakah terdapat perbezaan keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*?

Penggunaan kaedah PdP menggunakan Aplikasi pembelajaran mudah alih - SBITP_Me terbukti memberikan kesan yang positif terhadap pelajar yang mengambil kursus DFT20083 *Security Basic and IT Professional*. Pengaplikasian aplikasi mudah alih ini telah mewujudkan persekitaran pembelajaran yang lebih menarik, menggalakkan pembelajaran sendiri dan meningkatkan kefahaman pelajar bagi Topik 4: *IT Professionalism and Ethics*.

Buktinya, dapatan kajian yang diperolehi mendapati bahawa berlaku peningkatan yang ketara dalam CLO3A, iaitu peningkatan dari 66% pada Semester Pendek 2022 kepada 82% pada Sesi 1 2022/2023 selepas Aplikasi pembelajaran mudah alih - SBITP_Me ini diguna pakai oleh pelajar kumpulan rawatan. Jadual 10.0 menunjukkan *perbandingan Course Outcome Review Report (CORR)* bagi Semester Pendek 2022 dan Sesi 1 2022/2023.

Jadual 10.0: Perbandingan *Course Outcome Review Report (CORR)* bagi Semester Pendek 2022 dan Sesi 1 2022/2023

Kursus	Sesi	Kumpulan	CLO3A
DFT20083 Security Basic and It Professional	Semester Pendek 2022	Kawalan	66%
	Sesi 1 2022/2023	Rawatan	82%

Dapatan ini adalah konsisten dan selari dengan dapatan yang laporkan oleh Hamidah et al. (2019) yang menyatakan bahawa proses penyampaian makluman dan peningkatan kefahaman pelajar adalah lebih berkesan dengan penggunaan teknologi pendidikan masa kini iaitu aplikasi mudah alih. Selain itu, kajian oleh Santiago et al. (2022) & Kamal et al. (2019) berpendapat penggunaan aplikasi mudah alih yang bercirikan interaktif dalam sesi PdP membantu dalam pembelajaran sendiri dalam kalangan pelajar di samping turut meningkatkan motivasi, minat, keseronokan dan fokus pelajar sekaligus dapat meningkatkan prestasi akademik pelajar.

Pengujian Hipotesis Kajian: Tidak terdapat perbezaan yang signifikan terhadap penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional*.

Hasil daripada dapatan seperti yang ditunjukkan dalam Jadual 10.0 merumuskan bahawa terdapat perbezaan pencapaian yang signifikan di antara pelajar semester 1 2022/2023 yang didedahkan dengan Aplikasi pembelajaran mudah alih - SBITP_Me berbanding pelajar Semester Pendek 2022 yang diajar dengan menggunakan kaedah konvensional. Berlaku peningkatan sebanyak 16% untuk CLO3A iaitu pencapaian peratusan 66% pada semester pendek 2022 dan telah meningkat kepada 82% pada Sesi 1 2022/2023. Dalam kata erti lain, aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional* semakin meningkat selepas pengaplikasian Aplikasi pembelajaran mudah alih - SBITP_Me

dalam sesi PdP, maka hipotesis adalah ditolak kerana terdapat peningkatan yang ketara di antara kumpulan kawalan dan kumpulan rawatan.

Ringkasan Dapatan Kajian

Hasil dapatan daripada analisis yang dijalankan telah diringkaskan dalam bentuk jadual seperti dalam Jadual 11.0. Jadual berkenaan menunjukkan ringkasan hasil dapatan keseluruhan kajian yang digunakan bagi tujuan untuk menjawab objektif, persoalan kajian dan hipotesis kajian.

Jadual 11.0: Ringkasan Dapatan Kajian

Item	Dapatan Kajian
Objektif Kajian: Mengkaji tahap keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 <i>Security Basic and IT Professional</i> .	Diterima
Persoalan Kajian: Adakah terdapat perbezaan keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 <i>Security Basic and IT Professional</i> ?	Terdapat perbezaan signifikan
Hipotesis Kajian: Tidak terdapat perbezaan yang signifikan terhadap penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 <i>Security Basic and IT Professional</i> .	Ditolak

Kesimpulan

Berdasarkan kajian yang dilakukan ini, terutama bagi melihat keberkesanan penggunaan aplikasi SBITP_Me sebagai alat bantu mengajar dalam meningkatkan aras pemahaman pelajar terhadap kursus DFT20083 *Security Basic and IT Professional* mendapati penggunaan aplikasi pembelajaran mudah alih SBITP_Me ini dapat membantu meningkatkan motivasi, minat, keseronokan, fokus pelajar dan prestasi akademik pelajar. Selain itu, penggunaan aplikasi mudah alih ini telah menggalakkan pembelajaran sendiri dalam kalangan pelajar kerana aplikasi ini mudah diakses dimana sahaja dan pada bila-bila masa. Seterusnya kandungan media interaktif yang digunakan dalam aplikasi ini dapat menarik minat pelajar untuk menjadikan aplikasi ini sebagai sumber rujukan dan latihan. Manakala, hasil peningkatan dalam CLO3A juga membuktikan bahawa pengaplikasian teknologi peranti mudah ini dalam PdP perlu digunakan oleh para pensyarah sebagai salah satu inisiatif untuk membantu meningkatkan kefahaman dan prestasi pelajar khususnya bagi kursus DFT20083 *Security Basic and IT Professional*. Adalah diharapkan dengan impak yang telah ditunjukkan dengan penggunaan aplikasi ini dapat meningkatkan keyakinan para pensyarah dan pelajar untuk menggunakan aplikasi pembelajaran mudah alih SBITP_Me ini.

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SISTEM PENGURUSAN SKIM KHAIRAT KEMATIAN (SKK) DI MASJID: MASJID TUNKU SALLEHUDDIN, SG PETANI KEDAH DALAM MEMPERKASA SOSIOEKONOMI HALAL

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Abstrak: Skim khairat kematian merupakan suatu sistem tabungan melalui pembentukan dana khusus berkaitan perihal pengurusan jenazah. Ia merupakan bantuan kewangan yang diberikan kepada keluarga si mati bertujuan untuk menampung urusan kematiannya seperti pengebumian dan seumpamanya. Lazimnya, masyarakat lebih menaruh kepercayaan yang tinggi terhadap institusi masjid dalam menguruskan dana, derma dan kebajikan mereka lebih-lebih lagi berkaitan urusan khairat kematian. Tambahan pula, masjid merupakan kelompok yang 'lebih dekat' dengan masyarakat setempat dan tentunya proses pengendalian kematian dan pengurusannya akan menjadi lebih mudah dan lancar. Oleh yang demikian, kajian ini bertujuan untuk mengetahui fenomena sistem pengurusan SKK di Masjid Tunku Sallehuddin, Sg Petani Kedah serta usaha untuk mempergiat SKK dalam kalangan masyarakat setempat. Kajian ini menggunakan kaedah penyelidikan kualitatif melalui temubual mendalam secara bersemuka bagi mendapatkan maklumat yang tepat serta menggunakan kaedah dokumentasi melalui kajian kepustakaan seperti mekanisme jurnal, akhbar, dan laman web khususnya untuk memahami prinsip khairat kematian yang digunakan. Kajian mendapati bahawa pengurusan SKK di Masjid Tunku Sallehuddin, Sg Petani Kedah berada pada paras memuaskan serta bertepatan dengan syarak. Diharapkan kajian ini dapat memberi gambaran dan panduan kepada masjid lain dari sudut pengurusan dan pelaksanaan SKK. Oleh itu, SKK perlu diperluas kerana potensinya dapat membentuk dan mengukuhkan sosioekonomi halal bagi masyarakat sejagat.

Kata kunci: Sistem Pengurusan, Skim Khairat Kematian, Masjid, Sosioekonomi Halal

Pendahuluan

Masjid adalah titik sentral bagi pembentukan masyarakat sejak zaman Rasulullah S.A.W lagi. Ia dapat dilihat dengan jelas melalui sejarah yang tercatat bahawasanya memaksimumkan fungsi masjid telah membawa perubahan kepada masyarakat Madinah semenjak peristiwa hijrah. Namun begitu, masyarakat Islam hari ini mempunyai tanggapan yang sempit berkenaan fungsi

sebenar masjid dengan hanya memfokuskan bahawa masjid adalah tempat beribadah semata. Hakikatnya, masjid merupakan tempat disemaikannya segala sesuatu hal yang bernilai kebajikan dan kemaslahatan umat, baik yang berdimensi ukhrawi mahupun duniawi dalam sebuah garis kebijakan masjid (Rasyid et al).

Menelusuri konteks Skim Khairat Kematian (SKK), ia adalah bantuan kewangan berupa pemberian kepada keluarga si mati untuk menampung kos dan perbelanjaan proses pengebumian (Mirza et al, 2022). Tambahan pula pembiayaan pengurusan dan pemakaman yang semakin meningkat, telah menjadikan ia suatu bebanan khususnya yang berlatar belakang sosioekonomi rendah. Menurut laporan yang dikeluarkan pada **10 Ogos 2019 di Harian Metro**, terdapat kes yang sangat tragik berlaku apabila jenazah terpaksa diuruskan secara ritual bukan Islam iaitu pembakaran (*cremation*) kerana tidak mampu membayar RM800 kos pengurusan jenazah dan pihak berwajib tidak membantu pada waktu itu. Golongan berpendapatan rendah berisiko menanggung hutang dan taraf hidup semakin menurun sekiranya berhadapan dengan kos pengebumian yang tinggi (Anne & Michael, 2016).

Oleh yang demikian, SKK adalah salah satu usaha memulihkan sosio ekonomi golongan yang kurang pendapatan dengan membantu meringankan beban kewangan perbelanjaan pengebumian di samping memastikan pengurusan pengebumian dapat dilaksanakan secara terbaik tanpa dibebani hutang yang berlebihan. Tuntasnya, kerjasama pihak masjid dalam menawarkan SKK dapat mengukuhkan nilai empati, solidariti, belas kasihan dan sokongan sesama masyarakat kariah.

Metodologi

Dalam menyempurnakan kajian ini, pengkaji menggunakan metod kualitatif yang bersifat diskriptif bagi mengetahui fenomena sistem pengurusan SKK di Masjid Tunku Sallehuddin, Sg Petani Kedah. Kajian perpustakaan seperti menganalisis jurnal, akhbar, lawan web juga dilakukan bagi menjana idea dan kupasan terkini mengenai Skim Khairat Kematian. Di samping itu, kajian lapangan melalui sesi temu bual bersama Ustaz Abdul Rahman selaku imam merangkap pengerusi Masjid Tunku Sallehuddin Sg Petani Kedah telah dijalankan secara bersemuka bagi mendapatkan maklumat yang tepat, teliti dan mendalam berdasarkan situasi sebenar. Kaedah kajian yang digunakan adalah menggunakan data primer dan data sekunder.

Usaha Pengimarahkan Masjid

Masjid ialah rumah Allah yang perlu benar-benar diperkasa dan ditambah baik dari semasa ke semasa mengikut realiti zaman tanpa mengubah *asolah* dan matlamat masjid yang hakiki. Pemerkasakan dan penambahkan tidak dinilai dari sudut gahnya sesebuah masjid, sebaliknya pengimarahkan yang proaktif merupakan parameter kesuksesan sesebuah masjid. Secara umum, perkataan ‘imarah’ merupakan kata pinjaman daripada bahasa Arab yang telah meluas digunakan dalam bahasa Malaysia. Menurut kamus Oxford Fajar, perkataan ‘*ammarah*’ membawa maksud memakmurkan, membangunkan, mendiami atau mengkhuni. Dari sudut istilahnya boleh ditakrifkan sebagai aktiviti memakmurkan, menghidupkan dan membangunkan masjid (Muhyiddin & Ridouan 2020). Manakala menurut Kamus Dewan Bahasa dan Pustaka (2013) Edisi Keempat, perkataan imarah atau mengimarahkan bermaksud

menggerakkan atau menghidupkan suasana di masjid atau surau dengan pelbagai kegiatan berfaedah, kebiasaannya berbentuk keagamaan.

Dalil menyeru ke arah pengimarahannya banyak termaktub di dalam al-Quran dan as-Sunnah, antaranya di dalam Surah At-Taubah ayat 18 yang bermaksud:

“Hanyasanya yang layak memakmurkan (menghidupkan) masjid-masjid itu ialah orang yang beriman kepada Allah dan hari akhirat serta mendirikan sembahyang dan menunaikan zakat dan tidak takut melainkan kepada Allah, (dengan adanya sifat-sifat tersebut) maka adalah diharapkan mereka menjadi dari golongan yang mendapat petunjuk.”

Menurut Sheikh As-Sobouni (2008), sebahagian ulama berpendapat bahawa makna imarah terbahagi kepada dua iaitu berbentuk *hissi* dan *maknawi*. Memakmurkan masjid dari segi *hissi* merujuk kepada pengimarahannya dalam bentuk zahir seperti dengan membinanya, memelihara dan membaiki kerosakan yang ada. Hal ini mencakupi dengan menyediakan keperluan asas seperti bekalan air dan elektrik, bilik wudhu, ruang solat lelaki dan wanita, tempat parkir kenderaan dan sebagainya supaya para jemaah dapat melaksanakan ibadah dengan selesai. Memakmurkan masjid secara zahir ataupun *hissi* ada dinyatakan di dalam hadith yang diriwayatkan daripada Saidina Uthman bin Affan R.A. bahawa beliau mendengar Rasulullah S.A.W. (Sunan Ibn Majah #735) bersabda: “Barangsiapa yang membina masjid di mana Allah S.W.T. disebut serta diingati di dalamnya, maka Allah akan membina baginya mahligai di syurga.”

Daripada hadith ini, Abu Hasan dan Muhammad (t.t.) menjelaskan apabila seseorang membina masjid dengan niat yang ikhlas dan mengharapkan keredaan Allah, mereka akan diberi ganjaran yang sangat besar.

Sementara itu, memakmurkan masjid dari segi *maknawi* atau batin merujuk kepada tujuan utama pembinaan masjid itu sendiri iaitu sebagai pusat beribadah dan mendekatkan diri kepada Allah. Firman Allah S.W.T. di dalam surah al-Nur: 36 bermaksud:

“Nur petunjuk hidayah Allah itu bersinar dengan nyatanya terutama sekali) di rumah-rumah ibadat yang diperintahkan oleh Allah supaya dimuliakan keadaannya dan disebut serta diperingat nama Allah padanya; di situ juga dikerjakan ibadat mensuci dan memuji Allah SWT pada waktu pagi dan petang”

Antara salah satu bentuk pemakmuran masjid dari segi *maknawi* atau batin meliputi pengisian kerohanian seperti program keagamaan, kelas pengajian al-Quran, ceramah agama, tazkirah, kursus keagamaan, penyediaan bantuan sosial dan sebagainya. Hadaif utama kesemua program keagamaan tersebut adalah untuk meningkatkan pemahaman terhadap agama Islam, memperkukuh keimanan kepada Allah serta memperkuat hubungan silaturrahi sesama masyarakat.

Demikianlah pendapat kebanyakan ulama berkenaan lafaz imarah yang tidak hanya terbatas pada aspek fizikal sahaja, bahkan melibatkan pembangunan spiritual dan intelektual umat Islam. ‘*Ala kulli hal*, kedua-dua pengertian imarah ini perlu dilihat dari sudut pandang yang lebih luas supaya manfaat yang optimum dapat diberikan kepada umat Islam sejagat.

Dalam usaha mengimarahkan institusi masjid, ahli jawatankuasa masjid dan pentadbir yang diberi amanah dalam mengendalikan hal ehwal masjid adalah bertanggungjawab memikirkan cara untuk memperkasa dan menghaibatkan masjid sehingga getarannya dapat dirasakan oleh segenap masyarakat. Mereka perlu memastikan bahawa masjid bukan sahaja menjadi pusat beribadah, tetapi sebagai pusat kegiatan sosial umat Islam. Rentetan daripada itu, skop pengimarahkan perlu diperluas dengan mengambil pelbagai langkah dan inisiatif bergantung kepada kesesuaian dan kapasiti sesebuah masjid supaya dapat mendatangkan impak yang besar kepada ahli kariah baik dari segi pendidikan, sosial mahupun ekonomi.

Skim Khairat Kematian

Seperti yang dinyatakan oleh Gunardi et al. (2023), Skim Khairat Kematian atau lebih dikenali dengan SKK merupakan adat dan warisan unik yang mempunyai kepentingan besar bagi masyarakat Melayu. Ia juga memainkan peranan penting dalam menjamin kesempurnaan pelaksanaan pengurusan pengebumian di Malaysia. Kesempurnaan pengurusan jenazah dicapai apabila berjaya menunaikan ke semua hak si mati iaitu memandikan, mengkafankan, menyembahyangkan dan mengebumikannya. Menurut Mustafa el al (2013), sunat menyegerakan pengurusan jenazah bahkan ulama Islam berijma' menyatakan hukum keempat-empat urusan tersebut adalah fardhu *kifayah* ke atas semua orang Islam di kawasan tersebut. Sekiranya keseluruhan mereka mengabaikannya, maka kesemuanya dianggap berdosa.

Dalam mengelola Skim Khairat Kematian, secara umumnya tiada undang-undang khusus yang diperuntukkan. Namun demikian, amalan ini masih relevan dan kebiasaannya dikendali oleh badan-badan agama dan organisasi Islam. Menurut Mirza et al (2022), khairat kematian merupakan bantuan kewangan yang diberikan kepada keluarga si mati bagi membiayai kos pengurusan jenazah dan proses pengebumian. Dengan adanya bantuan sebegini, dapat memberi ketenangan dan sokongan emosi kepada keluarga si mati terutama ketika berhadapan dengan kehilangan ahli keluarga terdekat.

Menelusuri makna khairat dari aspek perundangan, ada disentuh secara meluas dan menyeluruh meski di dalam Perlembagaan Persekutuan mahupun Perundangan Negeri. Peruntukan undang-undang berkenaan kebenaran membuat pungutan khairat dan hukuman menjalankan pungutan khairat tanpa kebenaran telah diperuntukkan di dalam Akta/Enakmen Pentadbiran Islam Negeri-negeri di Malaysia selain negeri Sarawak. Di dalam Seksyen 7 (1) (2) (b) dan (c) Enakmen Pentadbiran Undang-Undang Islam Negeri Selangor 2003 (EPAINS 2003) menjelaskan bahawa maksud khairat di sini ialah usaha membantu kesejahteraan sosial masyarakat Islam di Malaysia. Secara tidak langsung ia telah merangkumi hal khairat kematian.

Seksyen 84 (1) Akta Pentadbiran Undang-undang Islam (Wilayah-Wilayah Persekutuan) 1993 menetapkan bahawa: Majlis boleh memungut, atau memberikan surat kebenaran dengan terma-terma yang difikirkan patut kepada mana-mana orang atau kumpulan orang, membenarkan orang atau kumpulan orang itu memungut wang atau sumbangan-sumbangan lain bagi apa-apa maksud khairat bagi menyokong dan memajukan agama Islam atau bagi faedah-faedah orang-orang Islam mengikut Hukum Syarak. Peruntukan ini menyatakan bahawa Majlis memberi kuasa kepada individu atau kumpulan untuk mengutip dana atau sumbangan untuk tujuan

kebajikan yang berkaitan dengan agama Islam. Ia memastikan aktiviti ini dijalankan mengikut syariat Islam dan bertujuan untuk menyokong dan memberi manfaat kepada umat Islam.

Kendatipun, bukanlah semua individu atau organisasi layak serta memiliki kemampuan menguruskan jenazah. Ia memerlukan kecekapan dan pengetahuan yang *daqiq*, termasuk pemahaman tentang prosedur dan adab-adab yang berkaitan agar segala urusan dapat dilaksanakan dengan sempurna. Lazimnya, jawatankuasa masjid dan komuniti Islam menjalankan sebahagian besar kerja yang berkaitan dengan pengebumian orang Islam (Gunardi et al). Ini kerana jawatankuasa masjid lebih dipercayai oleh masyarakat dalam menangani isu-isu perihal agama Islam memandangkan keberadaan mereka yang lebih dekat dalam sesebuah komuniti Islam. Selain itu, jawatankuasa masjid juga mempunyai pengetahuan dan pengalaman yang lebih mendalam mengenai adat dan tradisi pengebumian orang Islam. Mereka dapat memberikan bantuan yang lebih sesuai dan memastikan proses pengebumian dilakukan dengan sempurna mengikut ajaran agama Islam.

Pengurusan Skim Khairat Kematian (Skk) Di Masjid Tunku Sallehuddin, Sg Petani Kedah

Kajian ini tertumpu kepada Masjid Tunku Sallehuddin yang terletak di Sg Petani Kedah. Pengamalan Skim Khairat Kematian (SKK) di masjid ini merupakan inisiatif jawatankuasa masjid sepenuhnya sebagai usaha menjaga kebajikan masyarakat setempat khususnya membabitkan perihal pengurusan jenazah. Meskipun setiap pengendali SKK mempunyai niat dan tujuan yang sama, namun khidmat dan nilai manfaat yang ditawarkan adalah berbeza. Sebahagian mereka memberikan manfaat khairat berbentuk kos pengurusan jenazah sahaja. Namun, sebahagian yang lain memberikan khidmat dan nilai manfaat khairat merangkumi proses pengurusan jenazah, wang tunai, khidmat nasihat kepada keluarga si mati dan sebagainya.

Bagi Masjid Tunku Sallehuddin Sg Petani Kedah, khidmat SKK yang ditawarkan meliputi bantuan nasihat, bantuan dokumentasi, memandikan jenazah, mengkafankan, solat jenazah, pengebumian, khidmat van jenazah serta manfaat berbentuk wang sumbangan kepada keluarga si mati. Pencarum hanya perlu membayar RM50 setahun bagi melayakkan isteri dan tanggungan berumur 18 tahun ke bawah ataupun yang masih bersekolah tidak melebihi 21 tahun dapat menikmati manfaat wang tunai yang ditawarkan.

Penerima		Nilai Manfaat Yang Diterima
Si Mati	Pengurusan Jenazah	
	Isteri	RM 1500
	Anak	RM 1500
Waris	Berumur 1 tahun $\geq$ 21 tahun	RM 500
	Berumur 29 hari $\geq$ 1 tahun	RM 300

Jadual 1: Jadual Di Atas Menunjukkan Nilai Manfaat Yang Diterima Oleh Ahli Kariah Yang Mencarum Masjid Tunku Sallehuddin.

Setelah selesai caruman dibuat, pihak masjid akan mengeluarkan resit bayaran sebagai bukti bahawa caruman telah sempurna dibuat dan wang caruman tersebut diserahkan kepada bendahari untuk dimasukkan ke akaun bank khusus bagi tujuan khairat kematian. Menurut Rosana (2011), modernisasi adalah suatu proses transformasi dari suatu arah perubahan ke arah

yang lebih untuk meningkatkan kesejahteraan masyarakat. Begitu juga yang diaplikasikan oleh Masjid Tunku Sallehuddin dengan membuat pembaharuan dari sudut penggunaan bank. Sebelumnya, masjid tersebut menggunakan Takaful Malaysia sebagai medium dalam mengurus SKK. Namun, setelah berhadapan dengan kesukaran dari sudut proses tuntutan (*claim*), Masjid Tunku Sallehuddin Sg Petani Kedah telah beralih kepada Bank Muamalat. Keputusan ini diambil oleh masjid tersebut untuk memudahkan dan memastikan dana khairat kematian dapat disalurkan dengan lebih efisien kepada penerima manfaat. Selain itu, dengan menggunakan bank sebagai medium, masjid juga dapat mengoptimumkan penggunaan teknologi dalam menguruskan khairat kematian

Di Masjid Tunku Sallehuddin, Sg Petani Kedah, setiap pencarum akan diberikan kad ahli khairat kematian yang mana akan melancarkan lagi proses pengurusan SKK di masjid ini. Dengan adanya kad ahli ini membolehkan keluarga si mati membuat tuntutan dengan mudah dan cepat waima di luar waktu pejabat. Berikutan daripada kemudahan yang ditawarkan oleh pihak masjid, seramai 1500 keahlian telah didaftarkan. Ini menunjukkan bahawa pelaksanaan SKK di Masjid Tunku Sallehuddin mendapat sambutan yang baik daripada masyarakat setempat. Selain itu, dengan adanya keahlian ini, para pencarum juga merasa lebih terjamin dan tenteram kerana mengetahui bahawa keluarga mereka akan mendapat bantuan SKK apabila meninggal dunia. Natijahnya, kebijaksanaan pihak pengurusan Masjid Tunku Sallehuddin bukan sahaja dilihat dari sudut pengurusan jenazah dan bantuan kewangan, malah melangkaui sokongan moral yang diberikan kepada keluarga si mati.

Menurut Wahab (2010), pendekatan derma sosial mempunyai hubungan dengan pemberian dan kesukarelaan dalam menyediakan barangan serta perkhidmatan sosial persendirian kepada mereka yang memerlukan. Justeru, nilai manfaat yang diterima hanyalah berdasarkan amaun yang dijelaskan pada permulaan kontrak, bukanlah baki dana yang terkumpul. Senario ini berlaku pada setiap pengendalian SKK sama ada diuruskan oleh institusi masjid, badan kerajaan, badan bukan kerajaan (NGO) mahupun persatuan-persatuan kerana disinilah prinsip *ta'awun, tabarru'* dan sedekah diimplimentasikan sesama komuniti. Meninjau dari skop yang lebih luas, SKK bukan sahaja memainkan peranan dalam memulihkan sosioekonomi masyarakat, malah mempromosikan solidariti dan kebersamaan dengan saling membantu dan berbagi beban dalam kalangan masyarakat Islam.

Bagi menjamin ketelusan SKK di Masjid Tunku Sallehuddin, Sg Petani Kedah, proses pemantauan dan pengauditan laporan kewangan dijalankan pada setiap 3 bulan untuk memastikan sumbangan khairat benar-benar sampai kepada ahli keluarga si mati. Setelah melalui proses pengauditan, laporan kewangan akan dibentangkan di dalam mesyuarat supaya pihak pengurusan masjid maklum bahawa penggunaan dana khairat disalurkan dengan tepat dan tidak disalahgunakan. Prinsip akauntabiliti dan transparensi sesama pihak pengurusan adalah tunjang utama dalam pengurusan SKK bagi menghasilkan *output* yang lebih efektif. Namun, laporan kewangan SKK di Masjid Tunku Sallehuddin Sg Petani Kedah, tidak dipamerkan secara umum pada papan kenyataan masjid, sebaliknya hanya tabung kutipan jumaat sahaja yang dipamerkan sebagai bukti transparansi dan kepercayaan jemaah terhadap pengurusan masjid. Laporan kewangan tersebut biasanya disimpan di pejabat masjid dan boleh diakses oleh sesiapa sahaja dengan keizinan daripada pihak pentadbiran masjid. Kebiasaannya, laporan kewangan tersebut digunakan untuk tujuan pelaporan pihak berkuasa yang berkaitan.

Sementelahan itu, prinsip permuafakatan antara satu sama lain merupakan asas bagi kelangsungan dan efisensi sesuatu perkara. Persis kata peribahasa Melayu, “*Kuat akar kerana tunjang, kuat tunjang kerana akar*”. Demikianlah makna peribahasa di atas menggambarkan keberhasilan sesuatu perkara adalah ekoran daripada permuafakatan kedua belah pihak (Kamus Dewan Bahasa dan Pustaka 2023). Dengan adanya kesepaduan dan saling berkerjasama antara kedua belah pihak, kita dapat mencapai hasil yang lebih efektif dan berkekalan untuk jangka masa panjang. Justeru, dalam merealisasikan SKK, kerjasama daripada pihak kariah juga merupakan elemen yang penting bagi mencapai kelangsungan SKK. Peranan ahli kariah adalah dengan meuar-uarkan kewujudan serta mempromosikan manfaat SKK di media sosial seperti *group WhatsApp* komuniti, *Facebook* dan lain-lain platform. Usaha sebegini bukan sahaja bertujuan menggalakkan penyertaan aktif daripada ahli kariah, bahkan meningkatkan pemahaman dan kesedaran tentang peri pentingnya SKK dalam kehidupan masyarakat.

Sosioekonomi Halal Dalam Pengurusan SKK

Pengurusan SKK akan memberi kesan positif kepada ahlinya melalui pendekatan sosioekonomi halal. Secara zahirnya, sosioekonomi adalah bermanfaat kepada masyarakat yang menjadi ahli, yang membawa kepada ekonomi halal dari segi kutipan dan agihan. Ahli membayar SKK ini bagi memberi penekanan terhadap keperluan semasa dalam mengebumikan jenazah dari aspek ekonomi, yang mana perlu kepada kos pengurusan jenazah. Jika demikian, ianya secara langsung juga menunjukkan satu elemen halal bagi menanggung satu sama lain antara ahli yang menghadapi kematian ahli.

Kesimpulan

Berdasarkan realiti pentadbiran SKK di Masjid Tunku Sallehuddin Sg Petani Kedah, penulis mencadangkan agar SKK diperluas kerana mekanismanya mampu mendorong masyarakat ke arah kesejahteraan sosial yang lebih optimum. Program-program pendidikan dan kesedaran yang lebih aktif dapat membantu meningkatkan kesedaran masyarakat dalam membuat persiapan menghadapi kematian sama ada persiapan dari segi kerohanian mahupun kewangan. Perkhidmatan sokongan emosi dan psikologi kepada keluarga si mati perlu diberi perhatian supaya dapat mengurangkan kesedihan dan tekanan perasaan yang dialami. Dalam pada itu, SKK tidak boleh dipandang enteng kerana keterlibatannya berkait rapat dengan pengurusan jenazah yang merupakan kewajipan agama Islam serta memerlukan kepekaan yang tinggi. Tambahan pula, tidak semua individu memiliki kepakaran dalam menguruskannya. Oleh kerana itu, keberadaan organisasi atau institusi yang memiliki kepakaran mengendalikan hal ehwal jenazah sangat penting supaya setiap detail diurus dengan baik dan sesuai dengan tuntutan Islam. Tuntasnya, SKK dapat mengatasi jurang kesenjangan sosial dan sosioekonomi dalam komuniti Islam.

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PERSEPSI PELAJAR TERHADAP PENGGUNAAN PEMBENTANGAN MAYA 3D GALLERY WALK BAGI SUBTOPIK BUSINESS MODEL CANVAS (BMC) DI POLITEKNIK BALIK PULAU

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Abstrak: Pelbagai kaedah pembelajaran berasaskan teknologi telah diperkenalkan dalam bidang akademik sebagai salah satu alternatif untuk menjadikan proses pengajaran dan pembelajaran lebih menarik dan seterusnya mampu untuk meningkatkan kefahaman pelajar. Pengaplikasian teknologi juga berupaya untuk menyokong keperluan pembelajaran masa kini dan memudahkan visualisasi terutamanya bagi kursus yang melibatkan teori. Justeru, kajian yang dijalankan ini adalah bertujuan untuk meninjau persepsi pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap subtopik Business Model Canvas (BMC) di Politeknik Balik Pulau dalam meningkatkan pemahaman pelajar terhadap BMC yang diajar dalam kursus DFT30103 Cyberpreneurship. Reka bentuk kajian yang digunakan adalah berbentuk kaedah kuantitatif dengan menggunakan kaedah kajian soal selidik. Soal selidik dalam bentuk skala Likert 1 hingga 5 telah digunakan bagi mendapatkan data kajian daripada sampel kajian. Data kajian yang diperolehi kemudiannya dianalisis menggunakan perisian IBM Statistical Package of Social Science 23 (SPSS 23) untuk mendapatkan nilai min dan sisihan piawai. Seramai 136 orang sampel kajian telah menjawab soal selidik yang diedarkan dalam kalangan sampel kajian yang mengambil program Diploma Teknologi Maklumat (Teknologi Digital), Politeknik Balik Pulau menggunakan kaedah persampelan Morgan And Krejcie. Dapatan hasil analisa menunjukkan persepsi para pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap Business Model Canvas (BMC) di Politeknik Balik Pulau dapat meningkatkan pemahaman dan minat pelajar terhadap kursus DFT30103 Cyberpreneurship. Selain itu, hasil daripada kajian ini juga penting untuk dijadikan panduan dalam melestarikan penggunaan pembentangan maya 3D Gallery Walk dalam kursus-kursus lain yang ditawarkan di politeknik Malaysia.

Kata Kunci: Pembentangan Maya 3D, Business Model Canvas, Teknologi, Pembelajaran Dan Pengajaran, Politeknik

Abstract: Various methods of technology-based learning have been introduced in the academic field as one of the alternatives to make the teaching and learning process more interesting and subsequently able to improve student understanding. The application of technology is also able to support today's learning needs and facilitate visualization especially for courses involving theory. Thus, this research is aimed at surveying students' perception in using 3D virtual presentation Gallery Walk of Business Model Canvas (BMC) at Balik Pulau Polytechnic for

improving students' understanding of BMC teaching and learning process in the DFT30103 Cyberpreneurship course. The research design used is quantitative method by using the questionnaire research method. A questionnaire in the form of a Likert scale of 1 to 5 was used to obtain research data from the research sample. The research data obtained was analyzed using the IBM Statistical Package of Social Science 23 (SPSS 23) software to obtain mean value and standard deviation. A total of 136 people in the research sample answered the questionnaire that was distributed among the research sample who took the Information Technology (Digital Technology) Diploma program, Balik Pulau Polytechnic using the Morgan and Krejcie sampling method. The results of the analysis show that the students' perception of the use of 3D virtual presentation Gallery Walk of the Business Model Canvas (BMC) at Balik Pulau Polytechnic can increase students' understanding and interest in the DFT30103 Cyberpreneurship course. In addition, the results of this study are also important to be used as a guide in preserving the use of 3D virtual presentations Gallery Walk in other courses offered in Malaysian polytechnics.

Keywords: 3D Virtual Presentation, Business Model Canvas, Technology, Learning and Teaching, Polytechnic

1.0 Pengenalan

Keberkesanan pendidikan bukan hanya tertumpu pada infrastruktur sesuatu organisasi dan susun atur bilik darjah, tetapi juga kaedah pengajaran, aktiviti pengajaran yang digunakan oleh pensyarah yang berpusatkan murid juga memainkan peranan penting dalam mencapai setiap objektif pengajaran pensyarah. Strategi pengajaran yang pelbagai merupakan suatu elemen penting dalam menghadapi cabaran mendidik pelajar generasi muda pada masa kini (Abdul Rashid dan Narowi, 2021). Pendidik perlu menguasai pelbagai kemahiran pengajaran dan pembelajaran agar matlamat penyampaian dan proses pengajaran dan pembelajaran tercapai untuk memberikan kemahiran, pengetahuan bagi sesuatu kursus yang diajar.

Perubahan pedagogi pengajaran perlu dilaksanakan dalam memastikan proses pengajaran dan pembelajaran berjalan dengan lebih lancar dan menarik. Permainan adalah merupakan salah satu kaedah pengajaran interaktif yang sering digunakan oleh guru dan pensyarah di institusi pendidikan. Oleh yang demikian, salah satu kaedah pembelajaran yang bertepatan dengan dunia pendidikan hari ini adalah pembelajaran melalui kaedah Gallery Walk. Kaedah ini adalah satu kaedah pembelajaran berkumpulan ataupun boleh ditafsirkan juga sebagai pembelajaran berbentuk kooperatif dan kolaboratif yang melibatkan interaksi sosial dan sikap bantu membantu antara ahli kumpulan bagi merealisasikan matlamat yang sama dalam pengajaran dan pemudah cara (PdPc). Penggunaan alat bantu mengajar menggunakan kaedah pembentangan 3D Virtual Gallery Walk ini merupakan satu pembelajaran perkakasan yang sebenar yang menjadikan pengajaran dan pembelajaran lebih menarik, malah dapat menambah tahap kefahaman pelajar setiap kali proses pengajaran dan pembelajaran berlangsung. Kaedah pembentangan 3D Virtual Gallery Walk ini merupakan salah satu platform yang digunapakai sebagai medium pengajaran bagi kursus Cyberpreneurship (DFT30103) di Politeknik Balik Pulau (PBU). Hal ini diperkukuhkan apabila pihak kerajaan juga berusaha mempertingkatkan pembangunan modal insan dalam bidang ICT dalam dasar yang digubal. Selain itu juga, selaras dengan keperluan semasa, yang memerlukan tenaga kerja mahir dan berpengetahuan tinggi, kerajaan juga lebih fokus dalam meningkatkan kemahiran ICT di semua peringkat pengajian

malah perubahan kandungan pengajaran dan kemahiran berkaitan ICT juga dijalankan bagi memastikan ICT dapat dijadikan teras utama dalam meningkatkan kecekapan tenaga mahir akan datang (Unit Perancang Ekonomi, 2020).

Pembelajaran abad ke-21 (PAK21) memfokuskan kepada pembelajaran berpusatkan pelajar sekaligus ianya juga menekankan Kemahiran Berfikir Aras Tinggi dalam diri pelajar. Normala dan Rozaidah (2016) menyatakan bahawa pembelajaran abad ke-21 adalah bertujuan bagi membangunkan potensi murid dengan menyediakan peluang pekerjaan dan kemahiran pembangunan negara pada masa akan datang. Di sini guru perlu cekap dalam pelbagai teknik pengajaran supaya dapat memberi peluang kepada murid dengan pelbagai keperluan pembelajaran sekaligus dapat mencungkil potensi terhebat mereka. Industri Revolusi 4.0 bukan sahaja mengubah kurikulum di institusi namun, kaedah pengajaran dan pembelajaran di institusi juga berubah seiring perkembangan teknologi semasa (Mohd Taher dan Abu Bakar, 2021). Selaras dengan itu, keperluan asas pembelajaran pelajar seperti kaedah pengajaran serta sumber bahan untuk tujuan pengajaran amatlah penting dan perlu diberi perhatian oleh institusi pendidikan. Oleh yang demikian, golongan pendidik perlulah mempersiapkan diri mereka dengan teknik pengajaran yang lebih berinovasi dan kreatif (Mohd Shafie, 2020).

Pelajar kebanyakannya masih cenderung untuk bergantung kepada guru atau pensyarah malah masih terdapat aktiviti pengajaran yang berpusatkan guru berbanding berpusatkan pelajar (Emaliana, 2017). Ini akan menyebabkan suasana di dalam kelas membosankan kerana pensyarah tidak dapat memberi tumpuan kepada setiap pelajar. Kesannya, pelajar kurang memahami terhadap maklumat dan pengetahuan yang disampaikan oleh pensyarah dan tiada penglibatan aktif daripada pelajar. Pendekatan dan kaedah yang berbeza boleh digunakan dalam menghasilkan pembelajaran yang lebih berkesan (Shangguan C, Wang Z, Gong S, Guo Y and Xu S (2020).

2.0 Penyataan Masalah

Bersesuaian dengan hasrat Malaysia ke arah negara peneraju pengadaptasi Revolusi Industri 4.0 (IR4.0), institusi pengajian tinggi berperanan dalam mendidik mahasiswa untuk membudayakan pemahaman IR4.0 termasuklah mampu mengendalikan teknologi automasi, menganalisa big data, simulasi, cloud dan Internet of Thing (IoT) dalam kehidupan harian mereka (Mohd Taher dan Abu Bakar, 2021). Politeknik Balik Pulau (PBU) adalah sebuah politeknik yang menawarkan Program Diploma Teknologi Digital (DDT) selaras dengan keperluan negara ke arah menuju negara maju. Semua pelajar diploma DDT semester 2 di PBU wajib mendaftar kursus Cyberpreneurship (DFT30103). Kursus ini adalah salah satu kursus yang agak sukar untuk difahami oleh pelajar kerana terdapat pelbagai teori yang merangkumi pengkomersialan, penciptaan idea berkaitan perniagaan, penyediaan cadangan perniagaan, strategi kewangan dan pemasaran. Selain itu, kursus ini turut memberikan pendedahan mengenai harta intelek, pengurusan perniagaan, pendaftaran perniagaan, bantuan-bantuan yang tersedia untuk membangunkan sesebuah perniagaan, kaedah pengurusan kewangan yang berkesan, teknik pemasaran secara digital dan pembangunan rancangan perniagaan menggunakan Business Model Canvas (BMC). BMC merupakan salah satu sub topik yang dipelajari dalam kursus DFT30103 oleh pelajar DDT di PBU. BMC merupakan satu kaedah yang digunakan untuk membantu memahami model perniagaan dengan cara berstruktur. BMC adalah strategi pengurusan dalam bentuk carta visual yang terdiri daripada 9 elemen. Ini

disokong oleh hasil keputusan pencapaian CLO2A bagi Sesi I: 2022/2023. Hasil tinjauan mendapati pelajar gagal menerangkan secara terperinci setiap segmen atau elemen yang terlibat dalam BMC bagi sesuatu model perniagaan. Tinjauan awal juga mendapati pelajar kurang faham dan kurang yakin terhadap sub topik BMC tanpa bimbingan pensyarah, dan ini menyumbang kepada penurunan minat dan motivasi pelajar untuk membuat ulangkaji di luar waktu kuliah. Justeru itu, satu tindakan penambahbaikan dijalankan oleh pengkaji untuk meningkatkan pemahaman pelajar dalam sub topik ini. Perbandingan hasil keputusan Course Outcome Review Report (CORR) bagi Sesi II: 2021/2022 dan Sesi I: 2022/2023 dapat dilihat di dalam Jadual 1.

Jadual 1: CORR bagi Sesi II: 2021/2022 dan Sesi I: 2022/2023		
Kursus	Sesi	CLO2A
DFT30103	Sesi II:	88.4%
Cyberpreneurship	2021/2022	
DFT30103	Sesi I: 2022/2023	83%
Cyberpreneurship		

Berdasarkan analisa CORR, CLO2A bagi kursus DFT30103 Sesi I : 2022/2023 adalah kurang memberangsangkan iaitu mencatat peratusan sebanyak 83% iaitu penurunan sebanyak 5.4% berbanding Sesi II : 2021/2022. Markah penilaian bagi sub topik yang melibatkan BMC di dalam kursus DFT30103 ini adalah salah satu penyumbang kepada CLO2A. Bagi menangani peratusan CLO2A yang kurang memuaskan ini memberi ruang dan peluang kepada pensyarah kursus untuk menghasilkan alat bantu mengajar kaedah pembentangan 3D Virtual Gallery Walk seterusnya mengkaji tahap keberkesanan penggunaan alat bantu mengajar kaedah pembentangan 3D Virtual Gallery Walk dalam meningkatkan pemahaman pelajar terhadap kursus DFT30103.

3.0 Objektif Kajian

Kajian ini mempunyai **satu (1)** objektif utama yang berkaitan penyataan masalah kajian:

Mengkaji persepsi pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap Business Model Canvas (BMC) bagi kursus DFT30103 Cyberpreneurship di Politeknik Balik Pulau

4.0 Persoalan Kajian

Kajian ini dilaksanakan bagi menjawab persoalan kajian yang dibina berdasarkan objektif kajian iaitu:

Apakah persepsi pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap Business Model Canvas (BMC) bagi kursus DFT30103 Cyberpreneurship di Politeknik Balik Pulau

5.0 Kajian Literatur

Strategi Gallery Walk bertujuan agar murid-murid dapat kesempatan menyumbangkan idea mereka dan mendengar pandangan dan pemikiran anggota kumpulan yang lain (Yusnidar, 2014; Asmani, 2011). Selain itu, mengembangkan pengetahuan dan keterampilan murid-murid dalam berfikir, meneliti, berkomunikasi dan bekerjasama dalam mengumpul maklumat baharu dan memberi peluang kepada murid-murid memilih, mengolah dan menyampaikan maklumat dan pemahaman baharu yang diperoleh. Strategi ini juga dapat melatih murid-murid untuk berkomunikasi dengan lebih berkesan melalui aktiviti soal jawab. Selain itu, hasil kajian Chin, Khor dan Teh (2015) mendapati 71.4 peratus murid memahami topik pembentangan ahli kumpulan mereka dan kumpulan lain dengan menggunakan strategi Gallery Walk.

Walaupun kaedah PdP secara konvensional adalah dominan dalam sistem pendidikan, kaedah permainan kini semakin menjadi pilihan dalam kalangan tenaga pengajar. Permainan merupakan salah satu perubahan dalam corak pengajaran yang digunakan oleh pensyarah dengan mengubah konsep banyak mendengar kepada banyak melakukannya (Jamaluddin et. al., 2016). Menurut Mayer (2014), pembelajaran menggunakan elemen multimedia yang melibatkan proses pembelajaran yang menggunakan perkataan dan gambar contohnya dapat memudahkan aktiviti pengajaran kerana terdapat pelbagai model dan simulasi dalam kursus yang di ajar (Klemeš, Kravanja, Varbanov, & Lam, 2013).

Kajian demi kajian telah dilakukan dan membincangkan kesan-kesan penggunaan kaedah permainan dalam proses pembelajaran dan pengajaran seperti yang dilakukan Abdul Rahman, Zolkifli & Ling, (2020), Taspinar et al., (2016) dan Lu dan Zakaria, (2015) yang menyatakan bahawa kaedah permainan mampu mewujudkan suasana pembelajaran yang menarik serta menghiburkan. Ciri-ciri yang ada dalam gamifikasi ini telah mengubah senario pendidikan konvensional kepada aktiviti pengajaran dan pembelajaran yang lebih menarik dan interaktif (Wibawa, 2019). Gamifikasi akan memberi persekitaran yang baru kepada pelajar untuk lebih berinteraksi sewaktu proses pengajaran dan pembelajaran yang dilaksanakan.

Selain daripada itu, Wahid (2020) mendapati proses pembelajaran menggunakan kaedah permainan dapat dipercepatkan malah dapat mewujudkan suasana interaksi yang lebih positif dalam kalangan pelajar. Abdul Rahman, Zolkifli & Ling, (2020) pula mendapati permainan mempunyai kesan ke atas keupayaan dalam menyelesaikan masalah dan meningkatkan tahap penglibatan pelajar dalam menyiapkan tugas yang diberikan oleh pensyarah terhadap satu-satu kursus malah meningkatkan prestasi akademik pelajar.

6.0 Metodologi Kajian

Dalam memastikan proses kajian berjalan dengan lancar, sistematik dan berjaya menjawab persoalan kajian yang telah dinyatakan, pemilihan metodologi kajian perlu tepat dan bersesuaian (Nurawani, 2015). Bagi kajian ini, kaedah yang dipilih oleh pengkaji adalah kaedah kuantitatif kerana kaedah yang bercirikan statistik ini mudah untuk dianalisa bagi mendapatkan hasil dapatan kajian (Hennessy & Patterson, 2012; Johnson & Christensen, 2010; Jones, 2013).

7.0 Kajian Rintis

Kajian rintis telah dijalankan terhadap 30 orang responden dan analisa kajian mendapati nilai pekali Cronbach Alpha sangat memuaskan. Responden yang digunakan dalam kajian rintis ini adalah 30 orang bagi bertujuan mendapatkan keputusan yang jitu dan tepat. Jadual 2 menunjukkan tafsiran pekali kebolehpercayaan oleh Bond dan Fox (2015).

Jadual 2: Interpretasi skor Cronbach Alpha

Skor Cronbach Alpha	Interprestasi Kebolehpercayaan
0.91 sehingga 1.0	Sangat baik dan efektif dengan tahap konsistensi tinggi
0.71 sehingga 0.90	Baik dan boleh diterima
0.61 sehingga 0.70	Boleh diterima
0.51 sehingga 0.60	Item perlu dibaiki
< 0.5	Item perlu digugurkan

Dalam Jadual 3, menunjukkan nilai pekali Cronbach Alpha (α) yang diperoleh bagi pemboleh ubah kajian iaitu persepsi adalah $\alpha = .907$. Keputusan ini menunjukkan bahawa nilai pekali Cronbach Alpha (α) bagi pemboleh ubah kajian iaitu persepsi berada antara .881 hingga .900. Menurut Bond dan Fox (2015) nilai ini menunjukkan setiap item boleh diterima untuk penganalisan data.

Jadual 3: Nilai Alpha Cronbach (α) bagi Pemboleh Ubah Kajian

	Bil. Item	Alpha Cronbach (α)	Tafsiran
Persepsi pelajar	10	.907	Baik dan boleh Terima

8.0 Sampel Kajian

Dalam kajian ini, kaedah persampelan daripada populasi sasaran bertujuan telah gunakan agar objektif kajian tercapai (Jeffery, 2018; Ary, Jacobs dan Sorensen, 2011). Oleh itu, dalam kajian ini, sampel populasi yang boleh dicapai ialah populasi pelajar yang mengambil kursus DFT30103 Cyberpreneurship pada Sesi II 2022/2023. Manakala, bagi menentukan persampelan kajian, kaedah persampelan bertujuan sekali lagi digunakan kerana kaedah ini dapat membantu untuk memilih sampel yang mempunyai ciri-ciri yang hampir sama dengan kumpulan sasaran (Darussalam & Hussin, 2016). Populasi kajian adalah seramai 207 orang pelajar sesi II 2022/2023 yang mengambil kursus DFT30103 Cyberpreneurship di Politeknik Balik Pulau. Seterusnya, penentuan bagi saiz sampel kajian seramai 136 orang telah ditentukan mengikut jadual penentuan saiz sampel daripada Krejcie dan Morgan (1970). Data yang telah dikutip telah direkod dan dianalisa dengan menggunakan program Statistical Package for Social Science (SPSS) versi 26.0 untuk mendapatkan skor min bagi setiap aspek yang dinilai.

9.0 Instrumen Kajian

Kajian ini telah menggunakan borang soal selidik untuk mengutip data kajian kerana soal selidik mudah untuk dianalisa dan lebih mudah untuk ditadbir (Mohamad Najib, 2006). Kenyataan ini turut disokong oleh kajian Etikan & Bala (2017) yang menyatakan penggunaan

borang soal selidik membolehkan maklumat kajian dikutip dengan mudah, cepat dan cekap serta membantu dalam menghasilkan data mengenai tingkah laku, sikap, kepercayaan, pendapat dan pengetahuan responden.

Soal selidik kajian ini terbahagi kepada 2 bahagian, iaitu Bahagian A (maklumat diri pelajar) yang mempunyai 3 soalan. Pada Bahagian B pula terdiri daripada 10 soalan mengenai persepsi persepsi pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap Business Model Canvas (BMC) bagi kursus DFT30103 Cyberpneuership di Politeknik Balik Pulau. Skala Likert lima mata digunakan bagi menunjukkan kekerapan. Skala Likert tersebut adalah seperti 1= Sangat Tidak Setuju (STS) , 2 = Tidak Setuju (TS) , 3 = Tidak Pasti (TP) , 4 = Setuju dan 5 = Sangat Setuju (SS). Borang soal selidik ini telah diedarkan kepada sampel kajian secara atas talian dengan menggunakan perisian Google Form. Pengedaran secara atas talian menggunakan aplikasi atas talian seperti e-mel, Whatsapp atau Telegram telah dipilih kerana kaedah ini sesuai digunakan bagi mencapai sampel kajian yang besar dengan mudah dan cepat (Raja, 2018). Jadual 4 dibawah menunjukkan item Instrumen Kajian yang diedarkan kepada sampel kajian.

Jadual 4: Borang Soal Selidik Menggunakan Skala Likert 1-5

Bil.	Item	Skala Likert				
1	Saya seronok apabila pensyarah menggunakan pembentangan Maya 3D Gallery Walk semasa proses pengajaran dan pembelajaran.	1	2	3	4	5
2	Penggunaan pembentangan Maya 3D Gallery Walk sangat menarik dan tidak membosankan.	1	2	3	4	5
3	Saya sangat teruja untuk menggunakan peranti IOT Trainer Smart Kit ini.	1	2	3	4	5
4	Paparan pembentangan Maya 3D Gallery Walk sangat menarik, kreatif dan interaktif.	1	2	3	4	5
5	Peranti pembentangan Maya 3D Gallery Walk merupakan alat bantu mengajar yang efektif di dalam kelas.	1	2	3	4	5
6	Pembentangan Maya 3D Gallery Walk Kit ini membuatkan saya mengingat kembali topik yang diajar.	1	2	3	4	5
7	Pembentangan Maya 3D Gallery Walk membuatkan saya untuk selalu mengulangkaji pelajaran.	1	2	3	4	5
8	Pembentangan Maya 3D Gallery Walk menyebabkan saya memberikan tumpuan yang lebih ketika pensyarah mengajar.	1	2	3	4	5
9	Pembentangan Maya 3D Gallery Walk dapat merangsang perasaan ingin tahu saya terhadap sesebuah topik yang dipelajari.	1	2	3	4	5

10	Pembentangan Maya 3D Gallery Walk membuatkan saya lebih bersedia untuk belajar topik baharu.	1	2	3	4	5

10.0 Analisis Kajian

Persepsi pelajar terhadap penggunaan pembentangan maya 3D Gallery Walk terhadap Business Model Canvas (BMC) bagi kursus DFT30103 Cyberpreneurship di Politeknik Balik Pulau adalah dirujuk kepada interpretasi skor min yang dikemukakan oleh Ahmad Mustafa dan Sariff (2017) seperti di Jadual 6.

Jadual 6: Skala Persepsi Pelajar

Tahap Penerimaan	Min
Tinggi	4.00 – 5.00
Sederhana	2.01 – 3.99
Rendah	0 – 2.00

Sumber: Ahmad Mustafa dan Sariff (2017)

10.1 Persepsi pelajar terhadap penggunaan Pembentangan Maya 3D Gallery Walk

Jadual 7: Nilai Min Bagi Persepsi Pelajar

Bil.	Item	Min	Sisihan Piawai	Interpretasi
1	Saya seronok apabila pensyarah menggunakan pembentangan Maya 3D Gallery Walk semasa proses pengajaran dan pembelajaran.	4.6471	.47965	Tinggi
2	Penggunaan pembentangan Maya 3D Gallery Walk sangat menarik dan tidak membosankan.	4.3676	.48395	Tinggi
3	Saya sangat teruja untuk menggunakan peranti IOT Trainer Smart Kit ini.	4.5882	.49397	Tinggi
4	Paparan pembentangan Maya 3D Gallery Walk sangat menarik, kreatif dan interaktif.	4.6029	.49110	Tinggi
5	Peranti pembentangan Maya 3D Gallery Walk merupakan alat bantu mengajar yang efektif di dalam kelas.	4.6618	.47486	Tinggi
6	Pembentangan Maya 3D Gallery Walk Kit ini membuatkan saya mengingat kembali topik yang diajar.	4.3529	.47965	Tinggi
7	Pembentangan Maya 3D Gallery Walk membuatkan saya untuk selalu mengulangkaji pelajaran.	4.4265	.49639	Tinggi

8	Pembentangan Maya 3D Gallery Walk menyebabkan saya memberikan tumpuan yang lebih ketika pensyarah mengajar.	4.3676	.48395	Tinggi
9	Pembentangan Maya 3D Gallery Walk dapat merangsang perasaan ingin tahu saya terhadap sesebuah topik yang dipelajari.	4.3088	.46372	Tinggi
10	Pembentangan Maya 3D Gallery Walk membuatkan saya lebih bersedia untuk belajar topik baharu.	4.7647	.42575	Tinggi
	Keseluruhan	4.5088	.17104	Tinggi

Merujuk kepada Jadual 7, hasil analisis deskriptif bagi persepsi pelajar terhadap penggunaan Pembentangan Maya 3D Gallery Walk terhadap Business Model Canvas (BMS) di Politeknik Balik Pulau beradap pada tahap yang tinggi dengan merujuk kepada interpretasi persepsi oleh Ahmad Mustafa dan Sariff (2017) yang mana nilai min yang diperolehi adalah Min = 4.5088 (SP = .17104). Keputusan ini menunjukkan persepi pelajar terhadap penggunaan Pembentangan Maya 3D Gallery Walk terhadap Business Model Canvas (BMS) yang tinggi dapat memberikan kesan yang baik kepada peningkatan prestasi pelajar dalam kursus DFT30103 *Cyberpreneurship*. Selain itu, merujuk kepada Jadual 2, Item 10 menunjukkan item yang memperolehi nilai min yang tertinggi dengan catatan Min = 4.7647 (SP = .42575). Manakala item 5 pula memperolehi nilai min kedua yang tertinggi dengan catatan Min = 4.6618 (SP = .47486). Manakala item yang mencatat nilai min yang terendah adalah Item 9 dengan catatan Min = 4.3088 (SP = .46372). Namun begitu walaupun Item 9 mencatat nilai min yang terendah, item tersebut secara interpretasinya berada pada tahap yang tinggi. Kesimpulannya, kesemua item yang terdapat di dalam konstruk persepsi secara keseluruhannya berada pada tahap yang tinggi.

Seterusnya, penggunaan kaedah pembentangan menggunakan 3D Virtual Gallery Walk dalam proses pembelajaran dan pengajaran telah terbukti dapat mewujudkan persekitaran pembelajaran yang lebih menarik dan berkesan serta dapat meningkatkan tumpuan pelajar semasa kuliah. Hasil daripada penggabungan kaedah persembahan *3D Virtual Gallery Walk* dapat dilihat melalui keputusan Hasil Pembelajaran Kursus (CLO) untuk semester tersebut. Keputusan mendapati terdapat peningkatan ketara dalam CLO2A, meningkat sebanyak 2.1% iaitu daripada 83% pada semester sebelumnya kepada 85.1% seperti dalam Jadual 8 selepas pelaksanaan kaedah persembahan 3D Virtual Gallery Walk.

Jadual 8: Perbandingan CORR bagi Sesi I: 2022/2023 dan Sesi II: 2022/2023

Sesi	Kursus	CLO2A
I: 2022/2023	Cyberpreneurship	83%
II: 2022/2023	Cyberpreneurship	85.1%

11.0 Kesimpulan

Berdasarkan kajian yang telah dilakukan ke atas 136 orang pelajar yang mengambil kursus DFT30103 Cyberpreneurship pada sesi II 2022/2023 di Politeknik Balik Pulau menunjukkan bahawa penggunaan Pembentangan Maya 3D Gallery Walk bagi subtopik *Business Model Canvas* (BMC) telah diterima dengan baik. Kenyataan ini disokong dengan merujuk kepada nilai min yang tinggi iaitu 4.3088 (SP = .46372) yang telah diperolehi daripada hasil analisa data kajian melalui borang soal selidik yang diedarkan kepada sampel kajian. Data yang diperolehi ini juga membuktikan kesediaan pelajar untuk menggunakan Pembentangan Maya 3D Gallery Walk sebagai salah satu kaedah untuk meningkatkan aras kefahaman mereka dalam subtopik ini. Selain itu juga, penggunaan Pembentangan Maya 3D Gallery Walk dapat mengurangkan tahap kebergantungan pelajar terhadap para pensyarah dan meningkatkan minat pelajar untuk melakukan pembelajaran secara sendiri. Seterusnya, penggunaan Pembentangan Maya 3D Gallery Walk juga memudahkan para pelajar untuk membuat rujukan kerana bahan-bahan yang dimasukkan dalam projek ini adalah berfokus, berkualiti dan telah diperakui kesesuaiannya oleh pakar bidang iaitu para pensyarah yang mempunyai sekurang-kurangnya 5 tahun pengalaman mengajar kursus DFT30103 Cyberpreneurship. Disamping itu juga, Pembentangan Maya 3D Gallery Walk ini memudahkan sesi pengajaran dan pembelajaran oleh para pensyarah terutama bagi subtopik yang memerlukan visualisasi seperti *Business Model Canvas* dan kesannya, pelajar lebih mudah faham dan seterusnya dapat meningkatkan tahap minat dan keseronokan pelajar untuk belajar kursus ini. Justeru itu, adalah diharapkan dengan dapatan kajian yang menunjukkan persepsi pelajar berada pada tahap tertinggi dapat meningkatkan keyakinan dan menggalakkan penggunaan Pembentangan Maya 3D Gallery Walk dalam kalangan para pensyarah dan pelajar,

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PENERBITAN DOKUMENTARI DRAMA (DOKUDRAMA): CABARAN PENERBITAN 'TAYANG SEMULA' DI MEDIA SOSIAL DIGITAL. SATU KAJIAN LITERATUR

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Abstract: *Penerbitan dokumentari telah berkembang dengan pesat seiring dengan evolusi teknologi. Dokudrama, sebagai sebuah genre kacukan dalam penerbitan dokumentari dilihat dapat memperkayakan pengalaman penonton dengan menggabungkan elemen fakta dan naratif fiksi di dalam penerbitannya lantas memberikan pengalaman menonton yang berbeza kepada penontonnya. Penerbitan dokudrama melibatkan pembinaan naratif yang seimbang antara realiti dan unsur dramatik fiksi. Hal ini menciptakan genre "hybrid" yang dapat menarik perhatian para penonton dengan membangkitkan emosi dan keterlibatan watak dalam sesuatu isu yang diketengahkan. Dokudrama juga diakui dapat meningkatkan minat masyarakat dalam memahami isu-isu kompleks. Penggunaan media sosial sebagai platform untuk penerbitan dokudrama membawa cabaran tersendiri. Kebebasan penonton media sosial dalam memilih kandungan, bersama dengan perbezaan budaya dan perbezaan cara penontonan, dapat mempengaruhi penerimaan dan keterlibatan penonton. Selain itu, pengaruh media sosial terhadap tingkah laku penonton dan pembentukan komuniti dalam talian juga menjadi aspek penting terhadap tayangan semula dokudrama ini. Cabaran penerbitan tayang semula dokudrama di media sosial juga melibatkan perbezaan dalam penerimaan kandungan komersial dan kandungan semasa. Penyesuaian kepada trend penontonan video pendek dan adaptasi terhadap struktur penceritaan menjadi penting dalam usaha menjana minat penonton media sosial. Selain itu, faktor hak cipta, ketepuan penontonan, dan persepsi terhadap tayangan semula juga menjadi faktor yang perlu diberi perhatian.*

Kata Kunci: *Dokudrama; Media Sosial; Penerimaan Penonton*

Pendahuluan

Menurut Bruzzi (2000), dokumentari telah mengalami evolusi dari bentuk yang primitif menjadi lebih kompleks dan canggih. Kemajuan teknologi pada masa kini telah memberikan impak besar kepada penerbitan dokumentari, membuka pintu ke arah halatuu yang baru. Lebih tepatnya, konsep dokumentari ketika ini telah menjadi lebih luas dengan membawakan

pelbagai tema serta kaedah penyampaian yang semakin menarik. Perubahan teknologi dalam produksi dokumentari ini telah meningkatkan kualiti, membolehkan kepelbagaian penggunaan bentuk dan gaya, dan memungkinkan dokumentari mengambil pendekatan yang lebih kreatif dan inovatif dalam penyampaian, menjadikan penghasilan dan penayangan dokumentari semakin berkualiti dan memberikan kesan yang lebih besar kepada penonton.

Bieniek-Tobasco et al. (2019) menyatakan bahawa media berbentuk filem terutamanya dokumentari mempunyai potensi yang besar untuk menggabungkan beberapa strategi komunikasi, termasuk penggunaan imej, maklumat saintifik, dan naratif untuk memanfaatkan daya tarikan kognitif dan emosi, yang memudahkan penonton memahami isu yang diketengahkan.

Melalui kombinasi antara imej, naratif, dan muzik dalam filem, gabungan ini dilihat berpotensi untuk menarik perhatian penonton serta memberikan maklumat secara efektif. Kebolehan media filem untuk menggabungkan strategi komunikasi yang berbeza ini juga turut memberikannya ruang lingkup yang lebih luas untuk media seperti ini mempengaruhi penonton, baik dari segi intelektual mahupun emosi, terutamanya melalui penerbitan filem dokumentari (Bieniek-Tobasco et al., 2019).

Dokumentari Drama Sebagai Genre Kacukan (Hybrid Genre)

Emilika (2019) menegaskan bahawa dalam menghasilkan sebuah karya dalam genre dokumentari khususnya dokumentari drama, perlu kepada satu penelitian yang rapi terutamanya dari sudut pembinaan naratif yang harus digabungkan diantara realiti informasi kandungan serta penceritaan yang memerlukan kepada gaya lakonan berbentuk fiksiyen bagi menambahkan lagi minat dan penerimaan penonton terhadap sebuah karya dokumentari drama. Dengan itu dalam usaha menghasilkan sebuah dokumentari drama yang baik, penerbitan dokumentari drama harus mengambil kira keseimbangan naratif diantara pemaparan realiti yang mencakupi hal yang berkaitan fakta serta disulamkan dengan keindahan fiksiyen yang perlu direka cipta.

Dalam memahami keseimbangan penggunaan struktur penceritaan atau naratif, Samer (2018) menerangkan bahawa dokumentari drama atau dokudrama pada kebiasannya dihasilkan untuk kaandungan yang berbentuk pensejarahan yang cuba menerangkan satu situasi dalam sesuatu fakta sejarah atau peristiwa. Penggabungan diantara struktur naratif berbentuk dokumentasi yang bersifat fakta serta keadaan konflik sesuatu situasi berdasarkan fakta sejarah yang dipaparkan dalam bentuk dramatik. Ini membentuk sebuah genre yang bersifat kacukan atau dikenali sebagai 'hybrid genre'. Keunikan penghasilan docudrama ini dilihat dipengaruhi dari kaedah penghasilan atau penerbitan teater dan juga sinema.

Brylla dan Kramer (2018) pula mengatakan bahawa dokumentari adakalanya dianggap tidak mampu membangkitkan emosi penonton melalui elemen keterlibatan watak seperti yang ditonton melalui naratif fiksiyen, namun anggapan ini perlu dikaji semula untuk bentuk-bentuk dokumentari seperti dokumentari yang mengetengahkan watak dalam penceritaan dan dokumentari drama, iaitu sebuah genre dokumentari yang mempunyai hubungan yang lebih rapat dengan filem fiksiyen. Dokumentari drama memfokuskan pada watak dan kehidupan

sebenar manusia di dalam penerbitannya dilihat dapat membangkitkan emosi penonton dan memberi pengalaman yang lebih mendalam kepada penonton berbanding filem fiksiyen.

Menurut Hidayah, Rusnaini dan Winarno (2016), dokumentari drama adalah salah satu daripada inovasi media yang mampu membantu untuk meningkatkan minat masyarakat untuk mempelajari sesuatu perkara. Hal ini kerana dokumentari drama memberi kelebihan kepada penonton untuk belajar melalui pengamatan langsung, memperoleh pembelajaran yang lebih inovatif, dan dapat mengembangkan sikap, perbuatan serta kemahiran menyelesaikan masalah. Oleh itu, dokumentari drama boleh dipertimbangkan sebagai salah satu media yang dapat membantu masyarakat dalam memahami sesuatu perkara dengan lebih efektif dengan menjadikan pembelajaran lebih menyeronokkan dan bermakna.

Evolusi genre dokumentari ke dokumentari drama ini menunjukkan perubahan daripada teknik penerbitan dokumentari tradisi kepada penerbitan dokumentari yang lebih moden dan diyakini lebih mendapat tempat dalam kalangan penonton. Perubahan yang seiring dengan perkembangan teknologi komunikasi ini dapat memberikan manfaat yang besar kepada masyarakat. Ini terutamanya apabila berlakunya usaha penerbitan berbentuk tayang semula yang diusahakan oleh penggiat industri televisyen komersial termasuklah syarikat televisyen tempatan.

Dokudrama Dan Platform Media Sosial.

Mahoney dan Tang (2016), mengatakan bahawa perkembangan teknologi ini dapat membangunkan warga masyarakat yang lebih berpengetahuan dan berinformasi lantas dapat membawa peluang yang lebih besar untuk perubahan sosial yang positif dalam kalangan masyarakat daripada sebelum ini. Selain itu, teknologi juga memudahkan komunikasi dan perkongsian maklumat, memberikan platform yang lebih besar untuk membincangkan isu-isu sosial dan menggalakkan usaha-usaha untuk perubahan ke arah yang lebih baik. Dengan pengetahuan dan kesedaran yang lebih baik, warga masyarakat dapat berperanan secara aktif dalam memperjuangkan isu-isu sosial dan membina masyarakat yang lebih maju dan sejahtera.

Selain daripada itu, perkembangan teknologi kini membolehkan penghasilan dan penayangan dokumentari di platform digital, termasuk media sosial dan laman web yang memudahkan aksesibiliti. Dalam konteks ini, Bruzzi (2000) menekankan bahawa teknologi bukan sahaja memudahkan proses penghasilan dokumentari, malah membolehkan dokumentari mencapai khalayak yang lebih luas dan beraneka ragam, serta memberi impak yang lebih signifikan dalam penyampaian.

Justeru, dengan wujudnya integrasi penerbitan dokumentari atau secara umumnya siaran yang biasanya disiarkan menggunakan platform konvensional kepada platform media baharu, maka ianya telah mewujudkan pengukuhan penerbitan karya yang biasa diterbitkan oleh media massa yang bersifat konvensional kepada platform digital baharu yang turut membantu memanjangkan hayat penerbitan dokumentari televisyen termasuk di Malaysia.

Dengan itu, menurut Moe, Poell & Dijck (2015), dengan wujudnya platform media sosial telah membuka kepada lanskap baharu penerbitan industri filem dan televisyen di dunia. Keadaan

ini dijelaskan sebagai aplikasi sistem 'second screen' yang membuka ruang kepada penerimaan yang lebih meluas genre dokumentari dikalangan penonton.

Audiens Dan Media Sosial

Menurut Delli Carpini dan Keeter (1996), Media sosial telah terbukti memberi kesan yang besar terhadap tingkah laku penonton dalam membuat keputusan kerana media sosial dapat membentuk pendapat umum dan mempengaruhi wacana politik serta sosial. Selain itu, media sosial juga dapat menyediakan platform bagi masyarakat untuk berhubung dan berkomunikasi dengan orang lain lantas memupuk rasa sokongan masyarakat dan sosial (Baumeister & Leary, 1995).

Menurut Siti dan Azizah (2010), media sosial ketika ini telah berkembang menjadi tempat mengumpulkan golongan yang mempunyai minat dan keinginan yang sama, meluahkan pendapat masing-masing dan selain itu juga menjadi saluran untuk bertindak terhadap sesuatu perkara. Hal ini berketetapan dengan ciri-ciri yang terdapat pada platform media sosial seperti Facebook, Twitter, dan Instagram yang kini telah memberi peluang baru untuk penglibatan dan interaksi penonton. Perkara ini telah membawa kepada pengembangan bentuk komuniti dalam talian baru dan peningkatan budaya influencer, di mana individu dengan pengikut besar di media sosial dapat membentuk pendapat umum dan mempromosikan produk dan idea.

Menurut Zainab, Dania dan Nurazmallail (2019), media sosial ketika ini digunakan dengan sangat meluas dalam kalangan masyarakat. Pengguna sosial media ketika ini lebih mudah untuk mendapat akses kepada pakar-pakar di dalam sesuatu bidang iaitu dengan hanya melakukan carian pantas di platform media sosial masing-masing. Hal ini kerana pakar-pakar berkaitan maklumat yang ingin diketahui juga turut menggunakan sosial media sebagai saluran perbincangan.

Hal ini menyumbang kepada faktor yang menyebabkan sosial media menjadi salah satu aspek penting dalam masyarakat ketika ini kerana sosial media merupakan saluran untuk masyarakat mendapatkan maklumat dan juga mempunyai ciri-ciri yang dapat menarik perhatian masyarakat untuk terus menggunakannya. Antara ciri-ciri yang ada pada sosial media adalah di sosial media adalah kandungan boleh dihasilkan oleh pengguna itu sendiri.

Menurut Andreana (2020), media sosial ketika ini berjaya mendapat tempat di kalangan pengguna kerana memberikan peluang kepada pengguna untuk menghasilkan kandungan sendiri dan menjalin hubungan antara pengguna media sosial yang mempunyai minat yang sama. Hal sedemikian kepada media sosial telah beradaptasi dengan keperluan pengguna untuk mempunyai hubungan sosial antara satu sama lain.

Cabaran Penerbitan Tayang Semula.

Cabaran utama genre kacukan seperti docudrama dapat dilihat dari beberapa aspek berdasarkan kajian literatur yang dilakukan. Antara cabaran utama yang dapat dibincangkan adalah menerusi tiga aspek utama iaitu:

- i. Penerimaan penonton media baharu
- ii. Perbezaan Budaya
- iii. Kandungan Komersial vs Kandungan semasa
- iv. Faktor lain

Penerimaan Penontonan Media Baharu

Kajian awal dari Moe, Poell & Dijck (2015) mendapati bahawa integrasi kandungan televisyen dan media sosial pada asasnya akan membawa kepada kesan penerimaan yang berbeza dari segi gaya dan tingkahlaku pengguna media sosial yang dilihat begitu bebas dalam menentukan sebarang bentuk penontonan rancangan yang asalnya disiarkan dalam televisyen. Ini kerana penggunaan media sosial dilihat begitu demokratik dan bebas dalam menentukan sebarang penontonan yang dipilih. Penontonan yang bersifat sentrik ini boleh mengakibatkan rancangan dokumentari hybrid seperti docudrama hanya ditonton berdasarkan pilihan tertentu tanpa mendapat penontonan secara menyeluruh oleh penonton.

Charmain (2019) turut menjelaskan bahawa wujudnya perbezaan ketara terhadap penontonan aktif atau Prosumers yang dilihat begitu mudah dan bebas untuk memilih sesuatu kandungan yang bersifat komersial. Penontonan berbentuk aktif ini dilihat akan menyukarkan sebarang kawalan terhadap sebarang penyiaran yang dikongsi kedalam platform media sosial. Dalam keadaan ini penonton dilihat bukan hanya sebagai penonton malahan dalam masa yang sama mereka juga dinilai sebagai penerbit yang sering kali bebas untuk menerbitkan kandungan mereka sendiri. Dengan itu maka karya televisyen yang ditayang semula mungkin hanya terbatas kepada penonton yang pasif yang hanya minat kepada penontonan perkongsian dari penerbit semata-mata berbanding dikalangan pengguna media sosial yang aktif menghasilkan kandungan mereka sendiri.

Perbezaan Budaya

Perbezaan budaya memberi kesan ketara kepada kandungan dan tingkah laku pengguna media sosial. Hsu et al. (2021) mendapati bahawa pengguna cenderung untuk menghasilkan kandungan yang sejajar dengan nilai budaya mereka, tetapi lebih dipengaruhi oleh kandungan yang melanggar nilai tersebut. Dengan ini menyerlahkan perbezaan dalam penggunaan media sosial dan tingkah laku privasi antara budaya Barat dan Timur, dengan negara Eropah mempamerkan tingkah laku yang lebih terkawal.

Dalam keadaan ini cabaran yang jelas dihadapi tidaklah kepada perbezaan budaya dalam bentuk kandungan namun perbezaan budaya lebih bersifat budaya penggunaan penontonan yang dilihat amat berbeza dari segi pengguna media konvensional seperti televisyen yang dilihat tidak begitu aktif dalam mengawal sebarang kandungan berbanding penontonan pengguna media sosial.

Kandungan Komersial vs Semasa

Penerimaan kandungan konvensional yang bersifat komersial dilihat antara cabaran yang dihadapi bagi industri television dalam usaha menghasilkan kandungan tayang semula melalui

media sosial. Ini kerana terdapat beberapa faktor yang harus dikenal pasti antaranya dari segi budaya kandungan media sosial yang dilihat lebih ringkas dan menentang norma penerbitan kandungan komersial. Kualiti penerbitan juga dilihat berbeza terutamanya dari segi durasi masa penerbitan yang dilihat tidak sama. Pengguna media sosial lebih terarah kepada penontonan bersifat video pendek berbanding video yang mengambil masa durasi yang Panjang. Ini disokong dari pandangan yang dikemukakan oleh Ojomo dan Soedinde (2021) penggunaan video skit atau video pendek dilihat menjadi tren baharu dikalangan pengguna media sosial. Ini terutamanya dalam kandungan yang mempunyai unsur drama atau komedi.

Berdasarkan pandangan diatas maka cabaran menghasilkan tayang semula dokudrama dilihat mempunyai potensi untuk dikembangkan kepada pengguna media sosial. Namun demikian tren penerbitan video berdurasi pendek harus diberi perhatian memandangkan ianya berkait rapat dengan penontonan aktif yang wujud dikalangan penonton media sosial. Ini seperti yang diutarakan oleh Hu (2020) yang mengatakan bahawa penerbitan video pendek melalui platform media bersifat konvergen amat penting kerana selain dari tren penontonan ianya juga disebabkan sifat media sosial yang dilihat menggabungkan pelbagai elemen media dibawah satu platform.

Faktor Lain Dan Kesimpulan

Terdapat faktor lain yang dapat dilihat menjadi sebahagian dari cabaran menerbitkan kandungan genre dokudrama sebagai satu bentuk tayangan semula ke platform media sosial iaitu antaranya berkaitan dengan hak cipta kandungan itu sendiri yang dilihat akan mengakibatkan sebarang penerbitan komersial dari syarikat televisyen tidak dapat dikawal memandangkan ianya begitu mudah untuk dikongsi dan disunting oleh pengguna media sosial. Walaupun terdapat sekatan dan kawalan dari sesetengah platform media sosial namun keadaan ini sedikit sebanyak akan mengakibatkan pengguna media sosial yang juga penonton aktif kurang memberi perhatian kepada kandungan tayang semula tersebut.

Faktor penayangan semula juga akan mengakibatkan ketepuan penontonan iaitu karya bersifat tayangan semula ini merupakan tayangan yang disifatkan sebagai bertindan dan mengulangi penontonan penonton terutamanya kepada pengguna media konvensional yang juga pengguna media sosial. Dengan itu maka kajian mendalam harus dilakukan dalam usaha memahami sejauhmana konsep tayangan semula kandungan televisyen komersial ini berfungsi dan mendapat sambutan dari pengguna media sosial terutamanya generasi baharu yang lebih terdedah kepada penggunaan teknologi media hiburan baharu.

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MENINGKATKAN PENGUASAAN 30 KOSA KATA BAHASA INGGERIS MELALUI KAD GAMBAR DUA HALA DAN TEKNIK 'EYE SPY' BAGI ENAM ORANG MURID TAHUN 4 VALLUVAR

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Abstrak: Kajian ini dijalankan untuk meningkatkan penguasaan 30 kosa kata Bahasa Inggeris bagi murid Tahun 4 Valluvar. Tinjauan awal mendapati murid tidak mahir dalam menjawab soalan yang berkaitan dengan kosa kata Bahasa Inggeris dan tidak mengenal maksud kosa kata dalam buku (Get Smart) Tahun 4. Pentaksiran bilik darjah yang dijalankan pada waktu PdPc juga menunjukkan murid tidak dapat menjawab soalan Bahasa Inggeris dengan betul. Hal ini kerana murid menghadapi masalah dalam mengenal maksud kosa kata Bahasa Inggeris. Kumpulan sasaran dalam kajian ini melibatkan 6 orang murid Tahun 4 Valluvar. Fokus kajian ini adalah untuk meningkatkan penguasaan 30 kosa kata Bahasa Inggeris iaitu mengenal maksud kosa kata melalui kad gambar dua hala dan teknik 'Eye Spy'. Sehubungan itu, murid dapat menguasai kemahiran membaca dengan menggunakan teknik 'Eye Spy'. Ini akan meningkatkan kualiti dan potensi murid memperoleh markah yang lebih tinggi dalam mata pelajaran Bahasa Inggeris. Pelaksanaan kajian adalah melalui pemerhatian guru dan aktiviti latihan kosa kata yang pelbagai. Dapatan daripada penggunaan teknik 'Eye Spy' ini membolehkan murid boleh membaca dan mengenal maksud 30 kosa kata Bahasa Inggeris dengan menggunakan gambar. Ini terbukti apabila seramai 6 orang murid dapat menyiapkan latihan kosa kata dan membaca petikan Bahasa Inggeris melalui kad gambar dua hala dan dengan menggunakan teknik 'Eye Spy'. Kajian ini juga membantu para guru dalam pengajaran dan pemudahcaraan serta meningkatkan keyakinan guru terhadap cara pengajaran kosa kata Bahasa Inggeris yang sistematik di bilik darjah. (226)

Kata Kunci: Kad Gambar, 'Eye Spy', Kosa Kata, Penguasaan, Pemerhatian

Pengenalan

Penggunaan Bahasa Inggeris dalam kehidupan seharian amat penting pada masa kini sejajar dengan perkembangan pendidikan di Malaysia. Kementerian Pelajaran Malaysia telah mewajibkan semua murid di sekolah-sekolah Malaysia untuk menguasai Bahasa Inggeris dalam pelajaran mereka bagi menghadapi persaingan pada peringkat global. Hal ini boleh dilihat dalam Anjakan 2 yang memastikan setiap murid menguasai kemahiran Bahasa Malaysia dan Bahasa Inggeris serta menghayati bahasa lain.

Penguasaan Kosa Kata

Aspek penguasaan kosa kata penting bagi seseorang murid dalam komunikasi ataupun dalam aspek kemahiran membaca, bertutur dan menulis. Kegagalan memperoleh dan memperkembangkan kosa kata akan menjejaskan pencapaian bahasa seseorang murid sama ada dalam kemahiran membaca (kemahiran menyebut, mengenal maksud serta kemahiran bertutur. Oleh itu, penguasaan dan pemahaman kosa kata dalam Bahasa Inggeris adalah perlu

dalam membantu murid menguasai kemahiran membaca dan kemahiran bertutur Bahasa Inggeris.

Oleh itu, aspek penguasaan kosa kata penting bagi seseorang murid untuk menguasai kemahiran membaca, bertutur dan menulis. Kegagalan memperoleh dan memperkembangkan kosa kata akan menjejaskan pencapaian bahasa seseorang murid sama ada dalam kemahiran membaca, kemahiran bertutur serta kemahiran menulis.

Penyataan Masalah

Berdasarkan pemerhatian yang dijalankan dalam pengajaran dan pembelajaran Bahasa Inggeris, tahap penguasaan kosa kata Bahasa Inggeris agak tidak memuaskan dalam kalangan murid Tahun 4. Dalam kelas pengkaji, didapati 6 orang murid tidak dapat menjawab soalan Bahasa Inggeris dengan betul. Hal ini kerana, murid-murid ini mempunyai tahap penguasaan kosa kata yang kurang. Misalnya, murid menghadapi masalah dalam mengenal maksud kosa kata Bahasa Inggeris. Apabila sampai untuk sesi soal jawab dan meminta murid menceritakan atau membaca semula, murid-murid mendiamkan diri. Ini menunjukkan pengajaran tempoh hari adalah gagal. Terutamanya, apabila murid-murid diminta menerangkan maksud kosa kata dan membaca perkataan yang diberikan. Murid-murid menghadapi kesukaran untuk membaca dan tidak dapat menjelaskan maksud kosa kata yang dibuku (Get Smart) Tahun 4.

Disamping itu, pengkaji juga didapati murid-murid ini juga didapati hanya bergantung kepada latihan pada waktu pengajaran dan pemudahcaraan dalam bilik darjah sahaja. Ini membimbangkan pengkaji kerana kemahiran Bahasa Inggeris perlu diasahkan setiap hari untuk meningkatkan kecekapan murid dalam mempraktikkan bahasa kedua ini. Oleh itu, pengkaji merancang untuk menjalankan program berfokuskan untuk meningkatkan penguasaan kosa kata Bahasa Inggeris.

Objektif Kajian

Kajian ini merupakan satu usaha meningkatkan penguasaan kosa kata Bahasa Inggeris. Penggunaan kad gambar dua hala dan teknik 'Eye Spy' digunakan agar dapat mencapai objektif berikut:

Objektif Umum

Tujuan kajian ini adalah untuk membantu pengkaji meningkatkan kecekapan murid dalam menguasai 30 Kosa Kata Bahasa Inggeris dengan menggunakan kad gambar dua hala dan teknik 'Eye Spy' bagi murid Tahun 4 Valluvar. Kemahiran ini penting supaya dapat membantu

6 orang murid Tahun 4 Valluvar mencapai tahap penguasaan yang cemerlang dalam mata pelajaran Bahasa Inggeris.

Objektif Khusus

1) Menunjukkan kepentingan mengenal maksud 30 kosa kata Bahasa Inggeris lebih cekap dengan menggunakan kad gambar dua hala walaupun dengan sebarang soalan yang berkaitan dengan 30 kosa kata yang diberi dalam pentaksiran 1.

2) Memberi bimbingan secara pratikal antara satu sama satu (berpusatkan murid) dalam mengenal pasti 30 kosa kata yang berulang dalam petikan Bahasa Inggeris berpanduan teknik 'Eye Spy'.

3) Memberi penekanan terhadap kecekapan membaca dengan betul dan lancar dengan memahami maksud petikan Bahasa Inggeris.

Fokus Kajian

Kajian tindakan yang dijalankan ini difokuskan pada murid yang lemah dalam penguasaan kosa kata dalam aspek mengenal maksud kosa kata dan kemahiran membaca. Dapatan kajian Nur Nazuha (2018) menunjukkan murid-murid sekolah rendah tidak faham maksud kosa kata dalam Bahasa Inggeris. Hal ini, memberikan peluang kepada pengkaji perlu ada satu teknik dan bahan yang sesuai yang boleh menarik perhatian murid-murid Tahun 4 Valluvar dan sesuai dengan diri mereka bagi meningkatkan penguasaan kosa kata Bahasa Inggeris. Sekiranya kelemahan ini tidak diatasi, besar kemungkinan tahap penguasaan kosa kata Bahasa Inggeris kelas ini masih berada di tahap yang sama. Dalam kajian ini, pengkaji memfokuskan subtopik 'Where Are you from?', 'Games', 'My Week', 'Housework' dan 'The Emperor's Nightingale' dari silibus matapelajaran Bahasa Inggeris Buku Teks (Get Smart) Tahun 4.

Kajian Literatur

Menurut kajian yang dijalankan oleh Noraini Ishak et al, (2009), menyatakan bahawa penggunaan objek yang menarik seperti kad imbasan memudahkan murid mengingat pelajaran yang mereka pelajari. Daripada 10 orang murid, didapati 6 orang murid gagal menguasai kosa kata Bahasa Inggeris. Hal ini dapat dilihat semasa murid menjawab lembaran kerja di bilik darjah. Hal ini juga kerana, murid tidak berfokus dan berminat untuk mengikuti pengajaran dan pemudahcaraan di bilik darjah. Menurut Nation dan Newton, (2009) pula menjelaskan bahawa tahap penguasaan kosa kata yang dimiliki oleh murid yang mempelajari bahasa kedua ini adalah lemah disebabkan kegagalan untuk membina penguasaan makna dan sebutan perkataan tersebut. Hal ini juga memberikan peluang kepada pengkaji, perlu ada satu teknik dan bahan yang sesuai yang boleh menarik perhatian murid-murid Tahun 4 Valluvar dan sesuai dengan diri mereka bagi meningkatkan penguasaan kosa kata Bahasa Inggeris. Pernyataan ini disokong oleh hasil kajian Alonso 2013, yang menyatakan bahawa kurangnya pengetahuan dalam penguasaan kosa kata merupakan halangan dan kekangan terbesar yang perlu ditangani oleh penutur bahasa kedua ini.

Metodologi

Kajian ini merupakan kajian kuantitatif berbentuk deskriptif yang menggunakan kaedah pemerhatian. Melalui pemerhatian yang dijalankan pada waktu pengajaran dan pemudahcaraan, pengkaji dapat memerhatikan 6 orang murid tidak dapat menjawab soalan Bahasa Inggeris dengan betul kerana menghadapi masalah dalam penguasaan kosa kata dan kemahiran bacaan Bahasa Inggeris yang tidak memuaskan. Murid-murid ini juga sukar memahami maksud kosa kata Bahasa Inggeris di buku (Get Smart) Tahun 4. Hal ini juga dapat melihat melalui penilaian yang dijalankan oleh pengkaji di bilik darjah. Sehubungan dengan ini, pengkaji merancang

tindakan intervensi yang sesuai untuk membantu 6 orang murid ini bagi mengatasi kelemahan ini.

Analisis Data

Data yang diperolehi dengan menggunakan ujian Pra untuk menguji tahap penguasaan murid dalam penguasaan kosa kata Bahasa Inggeris.

Ujian Pra

Ujian Pra dijalankan pada awal sesi kajian untuk menguji tahap penguasaan murid dalam penguasaan kosa kata Bahasa Inggeris. Data yang diperolehi dari Ujian Pra adalah seperti berikut: Rujuk Jadual 1

Jadual 1: Pencapaian 6 Orang Murid Dalam Ujian Pra						
Bil	Murid	Ujian Pra (Maksud Kosa Kata)				
		Set 1 (7)	Set 2 (6)	Set 3(3)	Set 4 (8)	Set 5 (6)
1	A	2/7	6/6	1/3	3/8	1/6
2	B	2/7	2/6	1/3	3/8	1/6
3	C	2/7	4/6	1/3	3/8	1/6
4	D	2/7	3/6	1/3	3/8	1/6
5	E	4/7	5/6	2/3	4/8	3/6
6	F	5/7	6/6	3/3	4/8	3/6

Setelah dianalisis, data menunjukkan majoriti murid gagal menguasai maksud 30 kosa kata Bahasa Inggeris.

Pemerhatian Aktiviti 1

Pengkaji memberi bimbingan untuk menjawab soalan Bahasa Inggeris di buku ‘Workbook’ (Get Smart) Tahun 4 dan beberapa latihan yang diberikan oleh guru pada waktu PdPc. Pengkaji mendapati 6 orang murid dikenali gagal menjawab soalan Bahasa Inggeris dengan betul kerana mempunyai tahap penguasaan kosa kata yang kurang. Disamping itu, kemahiran bacaan juga menunjukkan tahap yang kurang memuaskan dalam kalangan murid ini. Selain itu, murid-murid ini juga mengambil masa yang terlalu lama untuk menjawab soalan Bahasa Inggeris. Malah dalam pentaksiran penggal 1, murid dikehendaki menjawab soalan esei dan struktur dalam matapelajaran Bahasa Inggeris. Ini memberi kesan kepada markah murid bagi pentaksiran satu khususnya dan memberikan kesan kepada markah keseluruhan subjek Bahasa Inggeris.

Refleksi Aktiviti 1

- Murid perlukan satu teknik bagi menguasai kosa kata Bahasa Inggeris untuk meningkatkan kemahiran bacaan dalam Bahasa Inggeris. .
- Sikap terlalu bergantung bantuan guru perlu dikurangkan supaya murid lebih berani dan yakin menjawab soalan Bahasa Inggeris.

- iii. Aktiviti menjawab soalan Bahasa Inggeris hanya berlaku dalam waktu PdPc sahaja dan tidak berlaku secara berterusan di luar waktu PdPc.

Tindakan Menangani Masalah

Hasil daripada pemerhatian, murid amat memerlukan suatu teknik untuk menyelesaikan masalah yang dihadapi. Oleh itu, penggunaan kad gambar dua hala dan teknik 'Eye Spy' dalam waktu PdPc telah dijalankan pada 7 Mei hingga 27 Julai 2023. Teknik ini memudahkan murid menguasai kosa kata Bahasa Inggeris dengan cepat dan tepat. Hasil daripada refleksi pembelajaran dan pemudahcaraan yang lalu, pemerhatian dan latihan digunakan oleh pengkaji bagi merasakan bahawa satu tindakan yang agresif perlu dilakukan bagi memastikan murid-murid tidak lagi menghadapi masalah ini.

Aktiviti Intervensi 1: Menjawab soalan yang berkaitan dengan kosa kata Bahasa Inggeris dengan menggunakan kad gambar dua hala.

Aktiviti ini mula dilaksanakan pada 7 Mei 2023 hingga 31 Mei 2023. Aktiviti ini merupakan hasil refleksi dari latihan yang telah dijalankan di bilik darjah pada bulan April. Aktiviti ini juga bertujuan untuk membimbing murid menjawab soalan yang berkaitan dengan kosa kata Bahasa Inggeris. Latihan pengukuhan satu diberikan setelah kad gambar dua hala digunakan dalam kalangan 6 orang murid tahun 4 Valluvar.

Pada bahagian depan kad gambar dua hala ini mengandungi gambar dan kosa kata. Manakala, pada bahagian belakang pula, kad ini hanya mengandungi gambar yang sama tanpa kosa kata. Menurut kajian Joan Herberg (2012) menyatakan bahawa kad imbasan adalah salah satu alat yang paling baik bagi membantu murid dalam proses awal mengenal maksud kosa kata. Pada

peringkat pertama, pengkaji menggunakan kad ini untuk membantu murid meningkatkan penguasaan kosa kata iaitu boleh mengenal maksud 30 kosa kata berpandukan dengan gambar dengan kosa kata yang disediakan di kad tersebut.

Pada peringkat kedua pula, pengkaji membimbing murid dengan memaparkan bahagian belakang kad gambar dua hala. Pada bahagian ini, kad ini hanya dipaparkan dengan gambar tanpa kosa kata. Pengkaji memastikan murid dapat mengenal maksud 30 kosa kata dengan berpandukan gambar. Pada peringkat ini juga, murid dapat menghuraikan maksud kosa kata, berpandukan dengan gambar untuk memastikan 6 orang murid Tahun 4 Valluvar dapat mengenal maksud dan menguasai 30 kosa kata Bahasa Inggeris.

Ujian Pos

Ujian pos dijalankan selepas kad gambar dua hala digunakan dalam mengatasi masalah penguasaan Kosa Kata Bahasa Inggeris. Kumpulan sasaran (6 orang murid) diuji maksud 30 Kosa Kata Bahasa Inggeris dengan memberikan latihan pengukuhan satu iaitu latihan 'Matching'. Data yang diperoleh dari Ujian Pos adalah seperti berikut: Rujuk Jadual 2

Jadual 2: Mengenal Maksud 30 Kosa Kata Bahasa Inggeris Dalam Latihan ‘Matching’

Bil	Murid	Ujian Pos Maksud Kosa Kata				
		Set 1 (7)	Set 2 (6)	Set 3 (3)	Set 4 (8)	Set 5 (6)
1	A	7/7	6/6	3/3	8/8	6/6
2	B	7/7	6/6	3/3	8/8	6/6
3	C	7/7	6/6	3/3	8/8	6/6
4	D	7/7	6/6	3/3	8/8	6/6
5	E	7/7	6/6	3/3	8/8	6/6
6	F	7/7	6/6	3/3	8/8	6/6

Dapatan daripada analisis latihan pengukuhan satu ini jelas menunjukkan ada peningkatan berlaku dalam diri murid terutamanya dalam menguasai 30 kosa kata Bahasa Inggeris.

Latihan pengukuhan satu ‘Matching exercise’ yang mengandungi 30 soalan (kosa kata) dari 5 topik yang telah dilaksanakan pada 04 Jun 2023 hingga 08 Jun 2023. Beberapa contoh latihan murid:

Pemerhatian Aktiviti 2

Pemerhatian yang dibuat dalam latihan pengukuhan satu menunjukkan peningkatan penguasaan kosa kata dalam kalangan murid. Pengkaji mendapati semua orang murid dapat menyiapkan latihan ‘Matching’ yang diberikan dalam jangka masa yang ditetapkan. Pengkaji memberi tempoh selama 30 minit untuk menyiapkan latihan ini. Akan tetapi, murid dapat menyiapkan latihan ‘Matching’ dalam masa 15 minit.

Refleksi Aktiviti 2

- Masa yang diambil untuk menyiapkan latihan pengukuhan satu sangat cepat.
- Kemahiran membaca menunjukkan tahap yang kurang memuaskan dalam kalangan murid.
- Latihan tersebut masih terhad dan kurang eksplorasi kepelbagaian bentuk soalan kosa kata lain yang lebih mencabar.

Aktiviti Intervensi 2: Latihan Kemahiran Membaca Dan Mengenal Pasti 30 Kosa Kata Bahasa Inggeris Dengan Teknik ‘Eye Spy’.

Aktiviti ini dilaksanakan pada 13 Jun 2023 hingga 20 Julai 2023. Aktiviti ini merupakan hasil refleksi dari latihan pengukuhan satu. Aktiviti ini bertujuan untuk membimbing murid untuk membaca dan mengenal pasti 30 kosa kata berpandukan gambar yang diberi dengan menggunakan teknik ‘Eye Spy’. Setelah murid menguasai 30 kosa kata Bahasa Inggeris dengan menggunakan kad gambar dua hala, murid diberi modul bacaan yang mengandungi 30 teks

pendek (short text). Ia disediakan dengan pengulangan setiap 30 kosa kata beberapa kali dalam petikan tersebut (short teks with repetition vocabulary).

Teknik ‘Eye Spy’ ialah satu aktiviti mencari kosa kata Bahasa Inggeris yang berulang dalam teks Bahasa Inggeris yang disediakan. Murid-murid mengenalpasti 30 kosa kata dengan menggunakan teknik ‘Eye Spy’ serta membulatkan kosa kata dalam petikan yang disediakan. Seterusnya, murid-murid ini membaca petikan tersebut dengan memahami maksudnya. Teknik ini juga meningkatkan daya ingatan dan penguasaan kosa kata serta kemahiran membaca dalam kalangan 6 orang murid Tahun 4 Valluvar. Bentuk latihan yang semakin mencabar ini mampu meningkatkan kecekapan murid dalam menguasai 30 kosa kata serta dapat meningkatkan kemahiran membaca Bahasa Inggeris.

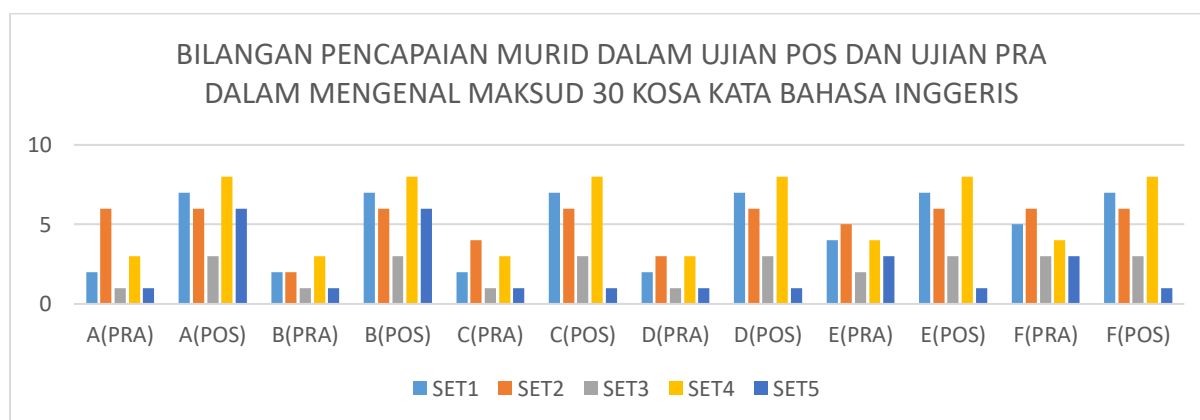
Pemerhatian Aktiviti 3

Pemerhatian yang dibuat dalam aktiviti kedua menunjukkan peningkatan penguasaan kosa kata Bahasa Inggeris murid dengan menggunakan teknik ‘Eye Spy’. Didapati teknik ini juga sesuai

digunakan untuk mengenal pasti 30 kosa kata di teks tersebut. Manakala, pengkaji menguji murid dengan memberikan latihan pengukuhan tiga. Aktiviti ini dilaksanakan pada 24 Julai 2023 hingga 27 Julai 2023.

Refleksi 3

- i. Murid dapat mengenal pasti 30 kosa kata Bahasa Inggeris.
- ii. Murid lebih mahir dalam kemahiran membaca dalam Bahasa Inggeris
- iii. Tempoh masa yang diambil untuk menyiapkan latihan pengukuhan 3 adalah antara 5 hingga 20 minit. Ini menunjukkan murid tidak lagi mengharapkan guru untuk menjawab soalan kosa kata.



Rajah 1: Rajah1menunjukkan Bilangan Pencapaian Murid Dalam Ujian Pos Dan Ujian Pra Dalam Mengenal Maksud 30 Kosa Kata Bahasa Inggeris.

Dapatan daripada kajian yang dijalankan terbukti menunjukkan penggunaan kad gambar dua berhala dan teknik ‘Eye Spy’ dapat menunjukkan peningkatan dalam penguasaan 30 kosa kata Bahasa Inggeris. Kenyataan ini dapat dikukuhkan dengan perbandingan keputusan ujian pra

dan ujian pos yang telah dijalankan ke atas 6 orang murid Valluvar. Hasil dari ujian pos yang dijalankan terhadap kumpulan sasaran, dapat menjelaskan bahawa kaedah dan teknik pembelajaran adalah faktor penting untuk meningkatkan penguasaan kosa kata Bahasa Inggeris.

Refleksi Pelaksanaan Aktiviti Secara Menyeluruh

Sepanjang kajian ini dijalankan, pengkaji dapat melihat berlakunya peningkatan yang sangat memberangsangkan dalam usaha menguasai dan mengenal maksud 30 kosa kata Bahasa Inggeris dengan menggunakan kad gambar dua hala. Seterusnya, teknik 'Eye Spy' membantu murid dalam mengenalpasti 30 kosa kata Bahasa Inggeris dalam petikan yang diberikan. Pengkaji menggunakan teknik 'Eye Spy' dengan membimbing murid dalam kumpulan. (berpusatkan murid) Selain ini, penggunaan kad gambar dua hala membantu murid dapat meningkatkan pencapaian mereka pada tahap optimum secara berterusan dalam penguasaan kosa kata Bahasa Inggeris. Selain itu, penggunaan teknik 'Eye Spy' juga membolehkan murid berpotensi untuk membaca petikan Bahasa Inggeris dengan memahami maksud petikan Bahasa Inggeris dengan betul. Seterusnya, enam orang murid juga dapat menjawab soalan yang berkaitan dengan 30 kosa kata Bahasa Inggeris dengan betul. Di samping itu, murid-murid ini juga mahir dalam penguasaan 30 kosa kata Bahasa Inggeris jika dibandingkan dengan situasi sebelum menggunakan kad gambar dua hala dan teknik 'Eye Spy' di bilik darjah.

Sehubungan dengan itu, teknik ini membantu guru dalam pengajaran dan pemudahcaraan secara tidak langsung serta dapat meningkatkan keyakinan guru terhadap cara pengajaran kosa kata Bahasa Inggeris di bilik darjah. Suasana bilik darjah juga semakin ceria dan kondusif kerana murid faham dengan pengajaran yang disampaikan oleh guru.

Cadangan Kajian Seterusnya

Berdasarkan kajian yang dilaksanakan, penyelidik masih melihat beberapa kelemahan lain dalam menguasai kosa kata Bahasa Inggeris. Dalam aspek penguasaan kosa kata, aspek kemahiran ejaan juga amat dititikberatkan apabila menjawab soalan subjektif. Dalam kajian ini, didapati murid mempunyai kelemahan dalam kemahiran ejaan. Pada masa akan datang, penyelidik bercadang untuk membantu murid meningkatkan kemahiran ejaan. Tinjauan awal akan dibuat secara lebih berfokus untuk mengenal pasti punca kelemahan tersebut dan sehubungan dengan itu penyelidik dapat merancang tindakan intervensi yang berkesan untuk mengatasinya.

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