

THE PROFILE OF EFL TEACHERS' CANDIDATE TPACK IN NEW NORMAL ERA

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Abstract: *TPK, and TPACK constructs, which prompted researchers to question the peculiarities of these three TPACK domains. Referring to TPACK's weaknesses in terms of precision and heuristic values, they concluded that TPACK may be theoretically effective but provides limited practical benefits for teachers, researchers, and administrators. The high level of Technological Content Knowledge (TCK) among prospective student teachers in their TPACK profile has significant implications. This indicates that these students possessed a strong understanding of how to effectively integrate technology into their teaching practices, specifically in relation to the content they were teaching.*

Key Words: *TPACK, teacher Candidate, New Normal*

INTRODUCTION

The caliber of Indonesia's human resources continues to be of particular significance to all of us as we get closer to Golden Indonesia 2045. Indonesia still lags behind other ASEAN nations in terms of human resource quality, even falling short of Vietnam. According to PISA data, reading, science, and math proficiency levels are still behind those of the ASEAN nations. The standard of education nationally and the quality of human resources are closely correlated. As a result, the state budget for education receives a 20% allocation from the government. The quality of

teachers is one of the cornerstones that determines the quality of education. As a result, when they are still potential teachers, professional and high-quality instructors should be prepared in a planned and systematic manner. A potential teacher must be knowledgeable about teaching methods, information technology and computers, scientific content expertise, and how pupils think and learn (Setiawan & Phillipson, 2020; Tyarakanita et al., 2021; Wright et al., 2018).

Teachers play an important role in education in the twenty-first century, often known as the digital era. Teachers' challenges in the digital era are becoming more difficult and complex as time passes. Every instructor must be able to respond to changing times by constantly updating material. To be more specific, in this all-digital world, every instructor must be able to adapt by adjusting learning techniques to meet the times and needs of students. The digital era has altered the world's perceptions of politics, economy, and social issues, including education. The digital era is heavily influencing the growth of the world of education, particularly in the field of education. As a result, teachers, as one of the education stakeholders, play a critical role in the learning process in the digital era.

To effectively integrate ICT, teachers must understand about technology, content, pedagogy, and the interrelationship of these areas (Nordin et al., 2013). As a result, the TPACK (Technological Pedagogical and Content Knowledge) model provides an important theoretical foundation for this research. TPACK refers to the incorporation of ICT into instruction. According to (Koehler et al., 2013), TPACK is a type of emergent knowledge that includes all three "core" components (content, pedagogy, and technology). These three components categorized into several and summarized such as

Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK).

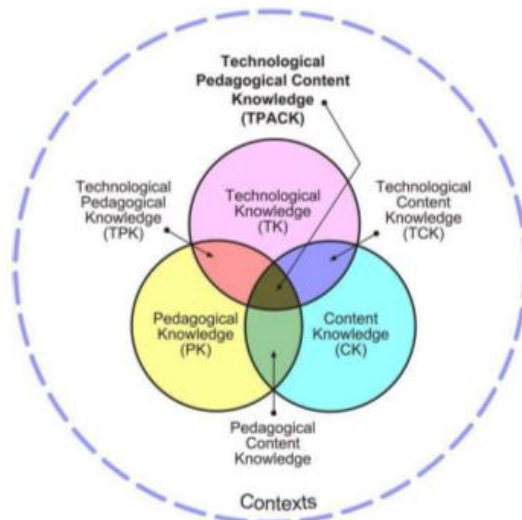
LITERATURE REVIEW

TPACK Framework

The TPACK framework expands on Shulman (1986,1987) PCK descriptions to describe how teachers' understanding of educational technologies and PCK interact with one another to produce effective technology-assisted teaching. Afterward, Mishra and Koehler created a framework that includes technology integration. The model created by Mishra and Koehler is a development of the model or framework introduced by Shulman in 1986 called PCK (pedagogical content knowledge). The reason behind the development of this new framework is the fact that "new technologies have changed the classroom situation or have the potential to change it". From Mishra and Koehler's point of view, technology provides space for explanations, representations, analogies, and demonstrations that make the subject matter easier to understand for students but at the same time, they argue that technology is different from content and content description. They identify and define each component and then analyze content, pedagogy, and technology in pairs to understand the intersections between them. Thompson (2007) changed TPCK into TPACK. The new name, TPACK, doesn't just mean adding a vowel "A" to make it easier to pronounce. Its deeper implication is to emphasize the necessity of three

kinds of knowledge, content knowledge, pedagogical knowledge and technology knowledge, to form a whole through interaction.

TPACK, Technological Pedagogical and Content Knowledge, is a framework to provide educators' views and knowledge in designing lesson plans so that a meaningful and meaningful change process occurs by teachers for students. Technology is the knowledge that educators need to have as a provision to teach students so that students can interpret the learning process more easily and better and of course in accordance with the times. TPACK or TPCK is a framework that describes teachers' understanding of the interrelated interactions between technology, content, and pedagogy (Koehler et al., 2004).



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According to the TPACK model that can be seen obviously in figure 2.1, there are three main components of teachers' knowledge: 1) Content, 2) Pedagogy, and 3) Technology. Equally important to the model are the interactions among these bodies of knowledge, represented as PCK (Pedagogical Content Knowledge), TCK (Technological Content Knowledge), TPK (Technological Pedagogical Knowledge), and TPACK (Technological Pedagogical Content Knowledge).

Content Knowledge (CK)

Content knowledge (CK) refers to their understanding of the subject matter to be learned or taught. In science, this would comprise scientific facts and ideas, as well as evidence-based reasoning. Such knowledge in art appreciation involves familiarity with well-known paintings, sculptures, artists, and their historical contexts (Koehler et al., 2013). All knowledge associated with the use of ICT related tools, for example technical know-how about the use of Google Doc (Koh & Chai, 2016).

Pedagogical knowledge (PK)

Pedagogical knowledge (PK) refers to deep knowledge about methods of teaching and learning (Redmond & Peled, 2018) or a teacher's in-depth understanding of teaching and learning processes and activities. It entails an understanding of classroom procedures or approaches, the nature of the intended audience, and strategies for assessing student comprehension. As a result, it necessitates a grasp of learning theories such as cognitive, social, and developmental (Koehler et al., 2013).

Pedagogical Content Knowledge (PCK)

PCK is consistent with and similar to Shulman's idea of knowledge of pedagogy that applies to specific content. PCK covers the core business of teaching, learning, curriculum, assessment, and reporting. It includes the importance of forging connections among different content-based ideas, students' prior knowledge, and alternative teaching strategies (Koehler et al., 2013). In order to provide better educational processes, this knowledge integrate the content knowledge with the pedagogical knowledge (Eren & Alkan, n.d.).

Technological Knowledge (TK)

TK is the knowledge and skills of various traditional, current, and emerging technologies (Chen & Jang, 2014). Acquiring TK enables a person to accomplish a variety of different tasks using information technology. This conceptualization of TK does not posit an "end state," but rather sees it developmentally as evolving over a lifetime. It requires a deeper understanding and mastery of information technology for information processing, communication, and problem-solving (Koehler et al., 2013).

Technological Content Knowledge (TCK)

TCK is, then, an understanding of how technology and content impact and constrain one another. Teachers must be able to master more than just the subject matter they teach; they must also have a thorough awareness of how the subject matter (or the types of representations that can be generated) can be altered by the use of specific technologies. Teachers must be aware of which technologies are best suited for addressing subject-matter learning in their domains, as well as how the

content influences or even transform the technology—or vice versa (Koehler et al., 2013). Knowledge about how ICT tools can be used to represent/research and create subject matter knowledge (excluding all forms of pedagogical considerations) (Koh & Chai, 2016).

Technological Pedagogical Knowledge (TPK)

TPK is a knowledge of how teaching and learning might change as a result of the usage of specific technologies in specific ways. This includes understanding the pedagogical benefits and drawbacks of a variety of technological instruments in relation to discipline- and developmentally appropriate educational designs and tactics. A greater grasp of the limits and affordances of technologies, as well as the disciplinary settings in which they operate, is required to construct TPK (Koehler et al., 2013). Knowledge of technologies that may be used for learning and teaching and how teaching might change as the result of using technologies (Redmond & Peled, 2018).

Technological Pedagogical Content Knowledge (TPACK)

TPACK is a form of emergent knowledge that encompasses all three "core" components (content, pedagogy, and technology). Knowledge of technological pedagogical content develops from interactions between content, pedagogy, and technology knowledge. TPACK, which underpins really meaningful and deeply skilled teaching using technology, is distinct from the understanding of any of the three ideas separately. TPACK, on the other hand, is the foundation of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical

techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn, and how technology can help redress some of the problems that students face; knowledge of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be used to help redress some of the problems that students face (Koehler et al., 2013). The figure and explanation above are a representation of the elements of T (technology), (Pedagogy) and C (content) which together produce a knowledge construct of technology content. It is useful to provide a reference for how the three elements are related and mutually support each other. In other words, the above is a description and explanation of how a subject matter is transformed by the application of technology. T and P together describe the pedagogical knowledge of technology, or knowledge of how technology can support pedagogical goals. the existence of knowledge and introduction of technology in a learning process creates new concepts and requires the development of dynamic transactional relationships between the three components suggested by the TPACK or TPCK framework.

Within this framework, many studies argue that teachers should be educated to integrate knowledge of technology, pedagogy, and content in teacher preparation programs (Association for Computers in Mathematics and Science Teaching (U.S.) et al., 2010; Niess, 2005). However, we are not aware of any research that particularly focuses on how to educate prospective teacher teachers to construct integrative knowledge for technology integration. More importantly, they (and practising teachers) need to be able to use this professional knowledge to design learning activities, or put into place relevant instructional practices, for the specific children they teach (Oakley, 2011).

TPACK in New Normal Era

The "new normal era" refers to a period characterized by significant and lasting changes in various aspects of society and daily life, often resulting from major disruptive events or circumstances. It signifies a shift from previous norms and practices to a new set of circumstances, behaviors, and expectations that become the accepted standard. The term gained prominence during the COVID-19 pandemic, as it describes the adjustments and adaptations made by individuals, organizations, and communities to mitigate the impact of the virus (Viner et al., 2020). This includes changes in social interactions, work arrangements, educational systems, travel, and health care practices.

Technological Pedagogical Content Knowledge (TPACK) in the new normal era refers to the integration of technology, pedagogy, and content knowledge by teachers to effectively navigate the challenges posed by remote learning (Koehler & Mishra, 2009). TPACK emphasizes the dynamic interplay between these three domains, recognizing that effective technology integration requires an understanding of how technology, pedagogy, and content knowledge intersect (Mishra & Koehler, 2006). In the new normal era, TPACK is crucial, as it enables teachers to adapt their instructional practices to virtual or hybrid classrooms and engage students in meaningful learning experiences. It involves the selection and utilization of appropriate digital tools and online platforms that align with the subject matter being taught (Mishra and Koehler 2006). For example, teachers may leverage video-conferencing platforms, learning management systems, or educational

apps to deliver content, facilitate discussions, and provide interactive learning opportunities (Archambault et al., 2010).

TPACK in the new era encompasses the application of pedagogical strategies that promote active engagement and collaborative learning experiences among students. Teachers with strong TPACK skills design online activities and assignments that foster student interaction, critical thinking, and problem solving (Niess, 2005). They create opportunities for peer collaboration, group projects, and online discussions, thus ensuring that students are actively involved in the learning process (Archambault et al. 2010).

According to Juwandani et al. (2022) research titled "Blended Learning Strategy in the New Normal Era using the TPACK Competency Study," it has been emphasized that in the context of the new normal era, it is crucial for teachers to integrate technology effectively or implement the Technological Pedagogical Content Knowledge (TPACK) framework into the teaching and learning process. The new normal era, characterized by the COVID-19 pandemic and its subsequent impact on education, has necessitated a shift in instructional practices and the adoption of innovative approaches to ensure continued learning. In this era, where traditional face-to-face teaching has been disrupted, the integration of technology has become essential for facilitating remote or blended learning environments.

The TPACK framework guides teachers in making informed decisions regarding the selection, utilization, and integration of digital tools, pedagogical strategies, and subject-specific content knowledge. It enables teachers to leverage technology effectively to enhance their learning experience, promote student engagement, and facilitate meaningful knowledge construction. By integrating technology

and TPACK into the teaching process, teachers can employ various instructional methods that cater to different learning styles and preferences. Blended learning, which combines online and offline elements, has gained prominence as an effective strategy in the new normal era (Juwandani et al., 2022). It allows for flexibility, personalized learning experiences, and the integration of various digital resources such as multimedia materials, online collaboration tools, and interactive assessments. Furthermore, the selection of appropriate teaching methods in the new normal era significantly affects students' understanding and engagement in the learning process. Teachers must employ pedagogical approaches that align with the unique challenges and opportunities of remote or blended learning environments.

They should design activities that foster active participation, critical thinking, and collaborative problem solving among students. Additionally, formative assessment techniques should be utilized to gauge students' progress and provide timely feedback, thereby enhancing their learning experiences (Juwandani et al., 2022). Alfarouqy's (2022) research study titled "Technological, Pedagogical, and Content Knowledge (TPACK) Profile of Class IV Teachers of SDN Batok Bali in Thematic Learning in The New Normal Era" sheds light on the significance of technology integration in education during the new normal era. The study highlights that in this era, where traditional face-to-face instruction has been disrupted, utilizing technology has become crucial for effective and engaging learning experiences. By incorporating technology tools and resources into thematic learning,

teachers can not only increase students' enthusiasm for learning, but also enhance the efficiency of the learning process.

One of the key advantages of integrating technology in the new normal era is the ability to streamline and simplify various aspects of learning. Technology enables teachers to go beyond traditional instructional methods by incorporating multimedia elements such as video playback or PowerPoint presentations, which can effectively replace extensive reliance on textbooks. This allows students to visualize concepts, engage with interactive content, and grasp complex ideas more easily. Moreover, the use of technology in thematic learning can provide a dynamic and interactive learning environment. Using digital tools, teachers can create virtual simulations, interactive quizzes, and collaborative online activities that foster student engagement and active participation. This interactive approach encourages students to play an active role in their learning processes, promoting critical thinking, problem-solving, and creativity.

Finally, Maru et al. (2021) research study titled "The Integration of ICT in ELT Practices: The Study on Teachers' Perspective in the New Normal Era" reveals that the results of the study suggest that teachers possess a high level of knowledge and perception regarding the integration of ICT in the learning process during the pandemic. However, there are still some obstacles that need to be addressed, particularly concerning the familiarity and readiness of relevant learning components. The findings of this study indicate that not all schools are adequately equipped with the necessary technological facilities for conducting online learning. Furthermore, teachers also expressed the need for continuous updates of knowledge related to the application and integration of ICT to ensure a more effective learning process. The

analysis also highlights that Internet connectivity issues and their financial implications can pose additional challenges. In light of these circumstances, it is recommended to implement efforts, such as providing essential ICT components in schools, equipping teachers with enhanced digital literacy skills, and allocating more time for learners' feedback and interaction to address these challenges.

In the new normal era, TPACK (Technological Pedagogical Content Knowledge) plays a crucial role in integrating technology into the learning process. Teachers with a strong TPACK can wisely select and use technology to enhance student engagement, facilitate deep understanding, and promote skills relevant to the digital age. However, challenges such as technological infrastructure readiness and the need for teacher knowledge updates must be addressed. Efforts such as providing adequate technology facilities, enhancing teachers' digital literacy, and allocating sufficient time for feedback and student interaction can support the effective implementation of TPACK in the new normal era.

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and student interaction can support the effective implementation of TPACK in the new normal era.

Research Method

The purpose of this research is to figure out the how are EFL prospective teachers' TPACK in the new normal era, how do EFL prospective teachers develop their TPACK, and the challenges do the EFL prospective teachers experience during their TPACK development so that the researcher decides to apply qualitative research. Thus, for this purpose, a qualitative research is chosen as the research method used in this research.

Result and Discussion

The Profile of EFL Prospective Teachers' TPACK in New Normal Era

The Technological Pedagogical Content Knowledge (TPACK) framework refers to the integration of technology, pedagogy, and content knowledge in educational settings. An EFL (English as a Foreign Language) prospective teacher's TPACK profile would involve understanding how to effectively integrate technology into their language teaching practices.

There are many variations in answering the TPACK profiles of previous studies. It influenced by several factors such as research subject, research location, research instruments, and research methods used by researchers to conduct their studies. In this research, the researcher successfully obtained data related to prospective EFL teachers' Technological Pedagogical Content Knowledge (TPACK) profile. The category with the highest score or level of mastery reported by the

respondents was TCK (Technological Content Knowledge), followed by TPACK, TPK (Technological Pedagogical Knowledge), PK (Pedagogical Knowledge), CK (Content Knowledge), and TK (Technological Knowledge) categories, which all had the same score. On the other hand, the Pedagogical Content Knowledge (PCK) category ranked lowest when determining EFL prospective teachers' TPACK profile.

The new normal era had a significant impact on the Technological Pedagogical Content Knowledge (TPACK) of English as a Foreign Language (EFL) prospective teachers. One notable effect is increased reliance on technology in education. As teaching and learning environments have shifted to blended and remote settings, prospective EFL teachers have had to adapt their instructional practices to accommodate these changes. This has necessitated the development of technological knowledge and skills to effectively integrate digital tools, online platforms, and virtual resources into teaching methodologies. Embracing technology has become essential for creating engaging and interactive learning experiences as well as maintaining communication and collaboration with students in the new normal era. Consequently, EFL prospective teachers are required to enhance their TPACK profiles by acquiring the necessary competencies to navigate and leverage technology effectively in their language teaching practices.

In line with the findings of this study, Alfarouqy (2022) in his research titled "Technological, Pedagogical, and Content Knowledge (TPACK) Profile of Class IV Teachers of SDN Batok Bali in Thematic Learning in The New Normal Era" sheds light on the significance of technology integration in education during the new normal era. Both previous and recent research reveal that the role of technology greatly influences various aspects of life, particularly learning during the new normal era. Therefore, it is not surprising that Technological Content Knowledge (TCK) emerged as the category with the highest scores. Tseng (2014) in his research on assessing EFL students' perceptions of their teachers' TPACK, using a validated student-based TPACK instrument, mentions that the TPACK knowledge of EFL teachers is not dominated by TCK or TPACK itself as a whole, however he got TC as the category which has highest score. Nevertheless, he noted that within TPACK, mastery of content knowledge received higher scores compared to other categories. Although both current and previous researchers have the same or similar aims and data collection technique, namely surveys, it does not guarantee that the results obtained by previous researchers can generalize the TPACK profile. Moreover, the clear difference in research subjects can influence the dissimilarity in results between previous and current researchers.

Despite using the same instrument from Schmidt et al. (2009), the studies conducted by Akyuz (2018) and Najjari et al. (2021) differ from the current researcher's research. However, both the studies yielded similar results. It is suggested while there were some variations in the findings, the overall outcomes align to a certain extent. This highlights the importance of considering multiple studies and perspectives to gain a more comprehensive topic. Refers to Akyuz's (2018) research on the relationships between the components of the

framework and how to perform TPACK assessment revealed that the CK category also had the highest scores in investigating both self-assessment and performance-assessment of prospective teachers, compared to other categories. However, it is important to take a note that all categories in this research were within a high range of values, indicating strong overall TPACK competency among the participants.

Whereas a research conducted by Najjari et al. (2021) on attending TPACK workshops to enhance TPACK literacy and perceptions of EFL teachers towards TPACK literacy found that 86.6% of the participants selected "strongly agree" in the CK category, indicating a high level of agreement among participants regarding their mastery of content knowledge in instructional materials. The studies mentioned that content knowledge (CK) was the category that was most mastered by the subjects. Content knowledge focuses on mastering the subject matter possessed by an individual. Mastering content knowledge (CK) provides significant benefits for prospective teachers. According to Hiebert et al. (2002), strong mastery of CK allows teachers to have a deep understanding of the subjects they teach. It enables them to provide better explanations, identify students' difficulties, and design more effective learning experiences. Based a strong understanding of CK, teachers are able to connect different concepts, provide concrete examples, and address students' misconceptions.

It is pivotal for prospective teachers to understand the importance of developing holistic TPACK knowledge and skills in their preparation as educators. In line with the research conducted by Mishra & Koehler (2006), teachers who possess strong TPACK knowledge and skills

can create better learning experiences by integrating content knowledge, technology, and pedagogy. Apart from this, prospective teachers need to acquire a deep understanding of the subjects they teach and their ability to use technology in their instruction effectively. Ertmer et al. (2012) emphasized that prospective teachers also need to understand the diverse needs of students in this digital era. By developing knowledge of appropriate technology and pedagogical strategies, they are able to integrate technology with content knowledge to create relevant, interactive, and engage learning experiences.

In contrast to the current research, a research conducted by Alifatun Nisa & Rohayati (2022) explored EFL prospective teachers' perceptions of TPACK for teaching English education students at a private college in Ciamis, Indonesia. This research utilized exploratory data analysis to analyze the data. Using a different instrument adapted from Muhaimin et al. (2019), the research found that TK (Technological Knowledge) ranked highest among the six categories.

Participants in this research claimed to have the technical skills to use the Internet and computers effectively (54.3%), reported easy learning of technology (65.7%), understood how to solve technical problems when using technology (65.7%), and kept up with popular new technologies (54.3%). In brief, based on these findings, we can conclude that all statements related to echnological knowledge received above-average results. The high percentage of TK (Technological Knowledge) mastery within TPACK (Technological Pedagogical Content Knowledge) in the present era is supported by several relevant studies. For example, Kukulska-Hulme & Traxler (2007) stated, "The proliferation of technology, such as smartphones, computers, and social media, in students' everyday lives has equipped them with

technological skills that give them an advantage in understanding and utilizing technology tools and resources in the context of learning." This indicates that the rapid development of technology has influenced the technological skills possessed by prospective teachers.

Furthermore, Koehler & Mishra (2009) mentioned, "The integration of technology in education has been recognized as an effective means to enhance student motivation, engagement, and learning outcomes." This demonstrates the significant role of technology in improving students' learning. With the increasing adoption and integration of technology in educational settings, prospective teachers are becoming more exposed and trained in using technology to support learning. Research conducted by Angeli & Valanides (2009) indicated that factors such as extensive exposure to technology, awareness of the benefits of technology in education, and the availability of relevant technology training have contributed to the improvement of TK mastery within TPACK. They found that prospective teachers who have better experience in using technology within the context of learning have a better understanding and application of TK.

Mastery of TK (Technological Knowledge) in TPACK must be accompanied by strong content knowledge and pedagogical skills. English teacher candidates must have a deep understanding of the subject matter they teach and effective teaching strategies. Merely possessing TK alone, teacher candidates may have good technological abilities, but they may struggle to integrate technology accurately and effectively into English language instruction.

Furthermore, Ertmer et al. (2012) emphasized the importance of understanding student needs and using technology relevant to the instructional context. English teacher candidates should be able to recognize and respond to the diversity of students' technology use. With TK proficiency alone, candidate teachers may not effectively identify and meet the individual needs of students in English language learning. Evidently, not only are the results of survey-based research or TPACK profiles different but there are also several studies that support the current research findings. Based on the analysis of the questionnaire conducted by the current researcher, it was found that the Technological Content Knowledge (TCK) category had the highest score compared to other categories. This was followed by the TPACK, TPK, PK, CK, and TK categories, which had the same score, while the PCK category ranked the lowest in determining the EFL prospective teachers' TPACK profile. One research that supports the findings of the current research was conducted by on Syafi'i & Anam (2022) Indonesian EFL teachers' Technological Pedagogical Content Knowledge (TPACK) in the post-pandemic era. The research found that, in terms of teaching experience, the TPACK, PCK, and TCK categories had a significant effect. This research shows similarities in the high level of the TCK category, despite using a quantitative method, as both studies adapted the instrument from Bagheri (2020). This finding suggests a consistent trend in the importance and development of Technological Content Knowledge (TCK) among EFL teachers in various contexts. This reinforces the notion that teaching experience plays a crucial role in enhancing teachers' TPACK and their ability to integrate technology effectively into their teaching practices.

The research conducted by Lye (2013) examining the opportunities and challenges faced by a private higher education

institution group in Malaysia that implemented the Technological, Pedagogical, and Content Knowledge (TPACK) model in their teaching and learning processes, indicated that categories related to technological knowledge such as TCK, TK, and TPK obtained high scores in the questionnaire survey conducted in the research. However, Teng stated that in general, the knowledge of integrating ICT in teaching and learning at this higher education institution can be considered at an average level. Furthermore, in terms of applying TPACK, the academic staff still needs to improve their teaching and learning knowledge. The high percentage of mastery of Technological Content Knowledge (TCK) in Technological Pedagogical Content Knowledge (TPACK) among prospective English teacher students in the current era is influenced by several factors. One of the causes for this is the rapid development of technology and the availability of various technological resources that support learning.

In this digital era, prospective teacher students grow up and learn in a technology-rich environment. They often use various technological devices, such as smartphones, computers, and social media, in their daily lives. The technological skills they develop at an early age give them an advantage in understanding and using technological tools and resources in the context of learning (Kukulska-Hulme & Traxler, 2007). Furthermore, the use of technology in education has also increased. Currently, prospective teacher students are exposed to the use of technology in the learning process.

Teachers and educational institutions are increasingly adopting and integrating technology into teaching to enhance student engagement

and learning outcomes. This motivates prospective teacher students to learn and master TCK, which involves knowledge of how to integrate technology into specific content areas (Koehler & Mishra, 2009). Angeli & Valanides (2009) also indicate that factors such as awareness of the benefits of technology in education and the availability of relevant technology training contribute to the mastery of TCK within TPACK. This suggests that the efforts made by educational institutions and teacher training programs to enhance TCK mastery have had a positive impact on prospective teacher students.

This is also supported by Bagheri (2020) in his research about the process of developing and validating a self-report questionnaire that can be employed to examine technological pedagogical content knowledge (TPACK) perceptions of Iranian EFL teachers, which stated that another important finding of several studies is that there is a large correlation between the TCK,

CONCLUSION

TPK, and TPACK constructs, which prompted researchers to question the peculiarities of these three TPACK domains. Referring to TPACK's weaknesses in terms of precision and heuristic values, they concluded that TPACK may be theoretically effective but provides limited practical benefits for teachers, researchers, and administrators. The high level of Technological Content Knowledge (TCK) among prospective student teachers in their TPACK profile has significant implications. This indicates that these students possessed a strong understanding of how to effectively integrate technology into their teaching practices, specifically in relation to the content they were teaching. This proficiency in TCK enables them to utilize technological tools and resources in a purposeful and pedagogically sound manner,

enhancing the overall quality of instruction in the classroom. As a result, these prospective teachers are better equipped to meet the demands of the digital age and provide meaningful and engaging learning experiences for their future students. However, it is important for them to continue developing their pedagogical and content knowledge along with their technological skills to ensure a comprehensive and well-rounded TPACK profile.

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