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INVESTIGATING PRE-SERVICE ENGLISH TEACHERS' EXPERIENCE IN IMPLEMENTING TPACK DURING TEACHING PRACTICE ON INDEPENDENT CURRICULUM

Nur Inayati[1], Iin Widya Lestari[1], Ainu Zumrudiana[1], Moh. Zainuddin[1]
Universitas Nahdlatul Ulama Sunan Giri, Indonesia
Email: nurinayati25@gmail.com,

Abstract: In the past, it was believed that teachers needed to possess both content mastery and pedagogical competence in order to effectively teach. These two competencies allowed teachers to educate students. However, in today's era and with an independent curriculum, teachers are now also required to develop new competencies, specifically technological competencies. By acquiring these competencies, teachers are expected to be able to integrate their teaching needs. Consequently, teachers must now master a variety of types of knowledge, including technological knowledge, pedagogical knowledge, and content knowledge. These types of knowledge together are referred to as the TPACK framework. Therefore, the author is interested in conducting further research on TPACK as it relates to pre-service English teachers. This study aims to determine: (1) How do pre-service English teachers conceptualize TPACK and its components, (2) What challenges do pre-service English teachers encounter when implementing TPACK during teaching practice with an independent curriculum, and (3) What strategies do pre-service English teachers employ to address these challenges. The research participants were students of English Education study programs from various universities who had practical experience teaching English in the independent curriculum. Data for this study was collected through questionnaires and interviews. The results of this study revealed: (1) there are various ways in which TPACK is conceptualized in learning, such as utilizing technology tools like PowerPoint, Canva, Google Form, Quizizz, and others. Additionally, pedagogical knowledge is conceptualized as approaching students by checking their understanding through questions at the end of a lesson and evaluating their comprehension and interest in the material, (2) The challenges faced by pre-service English teachers come from both internal and external factors, such as limited time to engage with students, unresponsive students, and the need for constant innovation to create engaging learning concepts that require process and consistency, (3) The research participants employ various strategies to address the challenges of implementing TPACK, such as creating contingency plans in case of technology-related problems, seeking additional support and approaches outside of class hours, and actively seeking to increase their knowledge of TPACK through frequent use of the internet.

Keywords: *Pre Service English Teacher, Independent Curriculum, TPACK framework*

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INTRODUCTION

In teaching English, there are essential components that support its process, namely teachers, students, curriculum, materials, etc. As Bahumai (2008) claimed, there are several important components in EFL, namely curriculum, syllabus, teachers, and students (Bahumaid 2008). These components must be complete to support learning. One of the crucial components is the curriculum, which refers to guidelines and a learning system to convey learning objectives. The curriculum is an important factor that influences the quality and system of education to achieve goals. As assumed by Erstad & Voogt, the curriculum encompasses educational policies, strategies, priorities, and ideas that shape an education system (Erstad and Voogt, 2018). It can be argued that the curriculum encompasses a range of elements, including regulations, policies, strategies, and priorities, which are collectively designed to enhance the quality of education. Instead, the curriculum is the heart of teaching and learning activities. It is like a system that organizes and sets up how educational teaching and learning can be done properly to reach out and meet its objectives.

Nowadays, the curriculum has been revised and changed for several reasons. The curriculum makers and designers have considered and researched various aspects, such as needs, technological advancements, and global trends. Therefore, changes always give rise to both optimism and skepticism. Sholikah and Purnomo (2022) explain that curriculum changes bring hopes for a new curriculum that is better aligned with the ability of education providers to implement it (Solikhah and Purnomo 2022). Thus, the curriculum must be meticulously structured to meet the demands of the contemporary era. The curriculum undergoes periodic changes and redesigns based on considerations and evaluations of the previous curriculum. The curriculum must adapt to the needs and characteristics of students according to the times. As Hutahean *et al* (2022) assert, the curriculum must be subject to periodic evaluation to ascertain its strengths, weaknesses, opportunities, and challenges in terms of implementation (Hutahaean, Telaumbanua, and Tamba 2022). It can be concluded that curriculum changes occur in certain periods due to evaluations that may involve the systems, objectives, and implementation. As a result, curriculum changes have new impacts on the system of teaching and learning processes. All components, such as schools, teachers, students, principals, facilities, and curriculum makers, should be prepared and learn how the new curriculum will be implemented.

Education in Indonesia is presently governed by the curriculum. The Indonesian education curriculum has undergone several revisions since its inception in 1947 as the "1947 Kurikulum Rentjana Pembelajaran" (Learning Plan). According to (Cholilah et al. 2023), there have been ten revisions to the curriculum in Indonesia, occurring in 1947, 1952, 1964, 1968, 1975, 1984, 1994, 2004, 2006, 2013, and 2022, with the latest being the Independent Curriculum. This choice reflects the need to adapt to advancements in technology and science. The Independent Curriculum prioritizes student-centered learning, thereby fostering

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independence and creativity in students. It is referred to as the Independent Curriculum.

Teachers must employ effective methods to ensure successful knowledge transfer and learning processes. In the case of English language acquisition, the role of the teacher is of utmost importance, as it involves significant complexity and responsibility. As Kumbakanom et al. (2017) express that the role of the teacher is of significant consequence in fostering children's interest in a given subject or language. Therefore, teachers must become learners by thinking about the situation and understanding it thoroughly from different points of view before teaching students and making it relevant to everyday situations (Kumbakonam, Archana, and Rani 2017). Consequently, teachers must have thorough preparation specifically for pre-service English Teachers before teaching continuously, especially in the independent curriculum, which has many differences and innovations in the learning system.

In the past, there was a widely held belief that teachers needed both content mastery and pedagogical competence in order to effectively teach a subject. These two competencies allowed teachers to educate students. However, in the present era, with the advent of independent curriculum, teachers also need to acquire additional mastery in the form of technological competencies. It is now expected that teachers will be able to integrate these competencies into their teaching practice. Mahdum (2015) further explains that it is the responsibility of teachers to develop a range of knowledge, including technological, pedagogical, and content knowledge. This combination of knowledge is often referred to as the TPACK framework (Mahdum 2015). According to this framework, pre-service English teachers must have an understanding of classroom management, materials, supporting technology, and emotional approaches to students. Forbes (2013) also emphasizes the important role that teachers play in organizing various learning, curricular, and technological elements within the classroom system. Therefore, teachers need to have knowledge in these areas (Forbes 2013). Since pre-service teachers lack experience, it is necessary to introduce them to the TPACK framework as part of their initial learning experience before they become teachers in schools. Dawson et al. (2010) argue that teachers in the early years of their teaching careers often have limited knowledge of using information technology, integrating technology, and utilizing technology. As a result, it is proposed that teachers should receive initial training in information technology, technology integration, and teaching and learning with technology during their pre-service education (Durdu and Dag 2017). Therefore, it is crucial to prioritize training and initial introduction to the TPACK framework and its components, whether through agencies, educational institutions, or raising awareness among pre-service English teachers, in order to ensure that they are well-prepared for their future teaching careers

The TPACK model provides a framework for understanding and describing the type of knowledge required by educators to implement effective pedagogical practices and to comprehend concepts by integrating technology into the learning environment. For example, discourse analysis. Koehler et al. (2007) concluded that the advancement of TPACK is a

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multifaceted undertaking that necessitates a deeper understanding of the intricate interconnections between content, pedagogy, and technology, as well as the contextual factors that shape their interactions (Dalal, Archambault, and Shelton 2021). TPACK combines knowledge that determines the quality of learning, such as Shulman's analysis, which describes the knowledge possessed by teachers who successfully navigate complex classroom dynamics. Shulman's work identified three principal categories of knowledge possessed by effective teachers. The first category, content knowledge (CK), encompasses the information that teachers possess regarding the subjects they are teaching. Secondly, pedagogical knowledge (PK) denotes the methodology employed by educators to facilitate learning in their students. The third significant domain of knowledge is pedagogical content knowledge (PCK), which pertains to the most effective technique or method for imparting a specific concept within a given subject matter (DeSantis 2016). The TPACK framework was used more optimally during the pandemic when learning shifted to using gadgets. This is supported by Scdimit et al. (2009) who explain that TPACK is also a relevant learning approach during and post-pandemic. The learning process has transformed from classroom learning to online learning, which requires technology to support learning (Schmidt et al. 2009). Prospective English language educators must possess a comprehensive understanding of the TPACK framework as a foundational element of their initial preparation for future teaching roles, especially in the independent curriculum. This curriculum is highly relevant and effective for maximum implementation of TPACK.

Regarding the explanation, the researcher conducted preliminary research to gather more information about how pre-service English teachers experience implementing TPACK during their teaching practice program. The researcher interviewed some preservice English teachers on December 2, 2023, at Universitas Nahdlatul Ulama Sunan Giri. The researcher found that pre-service English teachers have limited knowledge of the components of the TPACK framework. Although they have implemented it by using PowerPoint and other tools to deliver material, they are not aware of TPACK due to their lack of understanding. Additionally, there are challenges in implementing TPACK, such as students being passive when given tasks that require creativity, and classroom management issues leading to student boredom. Some pre-service English teachers also struggle with integrating technology due to limited understanding of online learning media.

In the previous study, the researcher did not discuss the challenges and strategies in implementing TPACK. Previous researchers focused solely on analyzing the ability to implement TPACK during online learning. Therefore, in this study, the researcher identified several challenges and difficulties that pre-service English teachers face when implementing TPACK and its components in the classroom during teaching practice.

Based on the background of previous studies, preliminary research, and phenomena showing the importance of emphasizing TPACK to pre-service English teachers, it is evident that TPACK is a blend of technology, pedagogy, and content

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knowledge that provides a framework for effective teaching in modern classrooms. While many studies have explored TPACK among experienced educators, there is a notable gap in understanding how pre-service teachers, especially those in English education, struggle with TPACK integration during their teaching practice. The independent curriculum, which allows for teacher independence in curriculum design and instructional strategies, presents a unique context for investigating pre-service teachers' experiences with TPACK implementation.

This research is significant for several reasons. Firstly, it contributes to existing literature by highlighting the challenges and successes encountered by pre-service English teachers as they integrate TPACK within an independent curriculum framework. Secondly, it provides insights into the effectiveness of teacher education programs in equipping prospective teachers with the skills to navigate the complexities of contemporary pedagogical practices. Finally, this study has implications for curriculum design and professional development initiatives aimed at improving TPACK proficiency among pre-service English teachers.

LITERATURE REVIEW

In learning, various concepts are very necessary and always develop according to the needs of the times. This necessitates that those engaged in the teaching profession possess the requisite competence in the utilisation of technology, and demonstrate the ability to employ such technology in the learning process within the classroom. The integration of technology, pedagogy, and content knowledge for English teachers offers a framework that can be applied in the learning and teaching process. As Yundayani (2019) explains TPACK is a framework for the use of technology by pedagogy to convey lesson material well (Yundayani 2019). Automatically all these components must be fulfilled and contribute to the learning process.

The integration of technology, pedagogy, and content knowledge for English teachers offers a conceptual framework that can be effectively employed in the learning and teaching process This is a challenge for teachers who must always adapt to current developments. It is incumbent upon teachers to demonstrate proficiency in the use of technology and to demonstrate the capacity to integrate technology into the teaching and learning process, this is still often a problem in using TPACK. According to Kirana and Nabhan (2021), one of the key challenges in supporting teachers' professional development is the integration of technology into the teaching and learning process. The ability of teachers to engage with the latest pedagogical approaches necessitates proficiency in utilizing an array of digital tools, resources, and techniques, integrated within the context of the lesson (Kirana and Nabhan 2021). It can be concluded that teacher preparation must be emphasized starting from material competence, class mastery, and technology integration.

The TPACK framework provides a valuable lens through which to examine the knowledge and skills that educators require to effectively integrate technology into their teaching practice, as well as the means through which they can cultivate these competencies. By the opinion of Mishra & Koehler (2006), It is essential to acknowledge the distinctive

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and interactive roles played and suggested by content, technology, and pedagogy in authentic teaching and learning environments. The TPACK framework encompasses seven components that must be considered (Evrim, Hsueh-Hua, and Ann 2011). They are defined as:

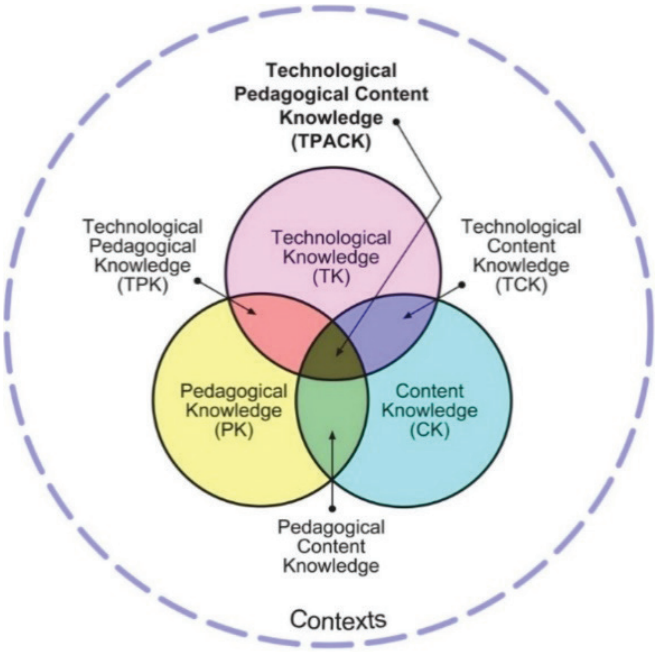

Figure 2.1: Mishra and Kohler TPACK framework (2006)

1. Technology knowledge (TK): A comprehensive understanding of the full range of technologies, from the relatively low-tech, such as pencil and paper, to the highly sophisticated, such as the Internet, digital video, interactive whiteboards, and software programs.
2. Content knowledge (CK): Knowledge about the actual subject matter that teachers must know about to teach. Is the knowledge about the material being studied. Materials are included in the curriculum. For example according to Liando (2023), if a high school student studies an English subject, the limitations of the subjects included in the curriculum should be interpreted as a whole (Liando, Tatipang, and Wuntu 2023)
3. Pedagogical knowledge (PK): A comprehensive understanding of the methodologies and procedures associated with the teaching process, including but not limited to classroom management, assessment, lesson plan development, and student learning
4. Pedagogical content knowledge (PCK): Knowledge that deals with the teaching process (Shulman, 1986). Pedagogical content knowledge is subject-specific, as it integrates content and pedagogy to enhance pedagogical practice in a given subject area.
5. Technological content knowledge (TCK): An understanding of how technology can be used to create new representations of specific content.
6. Technological pedagogical knowledge (TPK): An understanding of the ways in which different technologies can be employed in an educational context.
7. Technological pedagogical content knowledge (TPACK): It is essential that teachers possess the requisite knowledge to integrate technology into their teaching practice in any subject area. Teachers who have developed TPACK demonstrate an intuitive understanding of the intricate interrelationship between the three

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fundamental components of knowledge (CK, PK, TK).

The definition of TPACK is a framework that integrates three aspects, namely technology, pedagogy, and content knowledge. However, in previous research, not all teachers interviewed by researchers had a comprehensive understanding of TPACK. Research by Kirana & Nabhan (2001) found that as seen from teachers' answers through interviews which explain that teachers tend to think that TPACK is only about all technology, even though it is not just about technology. There are two more aspects besides pedagogical technology and content knowledge. In addition, some teachers do not know the details of, TPACK (Kirana & Nabhan, 2021). This is an evaluation that TPACK knowledge should be introduced more.

The same study conducted by Ringotama (2020) in his research found that prospective teachers understand TPACK well and can apply it in their classes. This contributes to research on TPACK principles in language education. Understanding pre-service teachers' perceptions of TPACK can benefit teacher training programs and pre-service teachers themselves, helping to develop the use of technology in teaching and improving teacher training programs and teaching practices (Ringotama, 2020). From the statement above, it is known that TPACK is already considered familiar by several pre-service English teachers.

Technology courses are one of the crucial things for teacher preparation in implementing TPACK effectively in the classroom. This statement is supported by Yildiz (2017) from the result of his research that despite increasing computer access and technology training, technology remains underutilized by pre-service and in-service teachers to support various types of teaching. This is the importance of effectively integrating technology into teaching practices. Bachelor programs for pre-service teachers did not include technology courses in their curriculum, indicating a potential gap in preparing pre-service teachers for technology integration in their future teaching roles (Yıldız, 2017). The addition of technology courses or training for learning support is very effective for the initial stage of technology introduction for pre-service English teachers.

Comprehensive content knowledge helps create a technologically enriched educational environment by enabling teachers to effectively integrate technology into their teaching practices, it is supported by Dabral's (2023) research found that strong content knowledge can identify the most appropriate technology tools and resources to support student learning. In addition, his research shows that pre-service teachers have a high and positive level of perceived technical education content knowledge (TPACK). They have good knowledge of content, pedagogy, and technology, as well as a good understanding of how to learn, learning methods, planning, processes, and assessment of learning in the classroom (Dabral, 2023). It can be concluded that technology, pedagogy, and content knowledge are very related to teachers determining class standards.

There must be many challenges in implementing TPACK because its components are so complex and cannot be separated. As stated by Liando *et al* (2023)

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the results of their research, namely the challenges faced by pre-service English teachers in integrating technology into their teaching practices are minimal, emphasize the need for pre-service teachers to develop their competencies in utilizing technology effectively (Liando *et al*., 2023). It means teachers must be tech-savvy and continue to upgrade their knowledge according to learning needs.

Not only TPACK courses but reflective practice also supports the development of TPACK knowledgeAs according to Sari *et al* (2021) on they study show that reflective practice helps EFL teachers to describe and articulate their own teaching experiences, learn from the experiences that occur in the classroom, and apply the learned practices in subsequent teaching. The findings suggest that reflective practice is an important mechanism for EFL teachers to become proficient in integrating technology in their teaching practice. Reflective practice is the process of thinking about critical incidents in the classroom before, during and after they occur to conduct an in-depth evaluation of the teaching and learning process. By reflecting on the experience, practitioners can gain new insights that can improve their future practices . Moreover, although both teachers had similar tendencies in the way they engaged in reflective practice, there were slight differences in terms of the focus of their reflections (Sari *et al*., 2021). It is also often found that some teachers have a strong interest in various uses of technology, while others do not.

The conclusion from the previous studies above explains that there are pre-service English teachers who understand TPACK and vice versa there are challenges and difficulties that come from students and preservice English teachers. Training programs for pre-service English teachers are also very helpful as initial knowledge. The previous study above has not used the Merdeka curriculum, which in the Merdeka curriculum there are many new things such as student independence which is the target, and teachers who are required to be more technologically, automatically implementing TPACK in this curriculum is also different. In this study, researchers will also investigate more complexly starting from understanding, and implementation, to challenges and obstacles .

METHOD

This study employs a qualitative approach and a descriptive research design. The researchers used descriptive methods to describe the pre-service English teachers's experience in implementing TPACK, what challenges faced, and strategies employed to address these challenges in teaching reading comprehension. The data were obtained through the administration of questionnaires and the conduct of interviews. Participants of this research are students of English Education study programs from different universities who have practiced teaching English in the independent curriculum. The techniques of data analysis consist of data reduction, presentation of data, and conclusions.

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FINDINGS

Pre–Service English Teachers' Conseptualize TPACK and Its Components

The primary objectives of this study is to ascertain how pre-service English teachers conceptualize TPACK and its components. This was achieved through the administration of questionnaires and subsequent interviews. The study was conducted with the participation of 31 respondents from the English language education study program at various universities who had completed the teaching practice.

The questionnaire sheet is classified into seven dimensions according to the TPACK components, namely Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). This classification is employed to ascertain the capacity of prospective English language teachers to implement TPACK. To facilitate the analysis of the questionnaire results, the researcher created a table.

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
1	I am conversant with the techniques required to resolve technical issues pertaining to the field of English language learning.	6,5	54,8	29	3,2	6,5
2	I can learn technology easily	9,4	71	6,5	0	3,2
3	I keep abreast of important new technologies related to English language learning.					

The data indicate that the most frequently endorsed response to the third statement is that respondents follow the development of significant new technologies related to English learning, with a proportion of 74.2%. Conversely, the lowest level of agreement is observed in the first statement, namely respondents' ability to solve technical problems in the context of learning English, with a proportion of 54.8%. This suggests that respondents' capacity to address technical issues remains limited and necessitates further training.

Ability to implement Pedagogycaal Knowledge(%)						
No.	**Statement**	**SA**	**A**	**N**	**D**	**SD**
4	I can use a variety of approaches to teaching English in the classroom.	19,4	58,1	22,6	0	0
5	I know how to organize, manage, and classroom management	9,7	71	19,4	0	0

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Ability to implement Pedagogycaal Knowledge(%)						
No.	**Statement**	**SA**	**A**	**N**	**D**	**SD**
6	I can adjust my teaching based on what students currently understand or do not understand in English Language Learning.	16,1	64,5	16,1	3,2	0

The data presented above indicates that the majority of respondents (71%) concur with the assertion that they possess the ability to organize, manage, and implement classroom management strategies. This finding suggests that the respondents have effectively integrated the TPACK component, specifically the Pedagogical Knowledge (PK) domain, into their practice.

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
7	I have enough knowledge of English materials	6,5	54	29	32	6,6
8	I have enough knowledge of English literacy	9,7	61,3	29	0	0
9	I have various ways and strategies to develop my understanding of English materials	6,5	71	22,6	0	0

From the data above, it is known that the presentation of the most agreed answers on the ninth statement, specifically, participants employ a range of techniques and strategies to enhance their comprehension of English materials, with an average score of 71%. Conversely, the lowest presentation is in the seven statements, namely respondents have enough knowledge of English materials by getting 54.8% of answers in agreement.

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
10	I am able to deliver lessons that effectively integrate literacy, technology and English language teaching methodologies	9,7	51,6	38,7	0	0
11	I can choose technology that enhances English learning content	9,7	71	19,4	0	0
12	I can choose technologies to use in the classroom that can improve what I teach, how I teach, and what students learn.	19,4	54,8	25,8	0	0

From the data above, it is known that the presentation of the most agreed answers on the eleventh statement, namely participants can choose technology that enhances English learning content by getting 71%. .While the lowest presentation is in the ten statements, specifically, respondents are permitted to select the technologies they wish to utilize in the classroom that can improve what they teach, how they teach, and what students learn by getting 51.6 % of answers in agreement

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Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
13	I know how to choose effective teaching approaches to guide students' thinking and learning in English language learning.	9,7	67,7	22,6	0	0
14	I use effective approaches to brainstorm with students	9,4	71	61,3	22,6	0
15	I create interesting English materials according to the needs of students	19,4	64,5	16,1	0	0

From the data above, it is known that the presentation of the most agreed answers on the fifteenth statement, namely participants create interesting English materials according to the needs of students getting 64,5%.

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
16	I am able to select technology that will enhance my methodology for teaching English in the classroom	9,7	71	16,1	0	3,2

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
17	I am able to apply the knowledge and skills gained from the technology in question to a variety of teaching activities within the context of English lessons.	6,5	74,2	19,4	0	0
18	My study program has made me think more deeply about how technology can affect the approach to teaching English that I use in the classroom.	9,7	77,4	12,9	0	0

From the data above, it is known that the presentation of the most agreed answers on the eighteenth statement, specifically, the program has prompted them to reflect more profoundly on the potential impact of technology on their pedagogical approach to English language teaching. It has also equipped them with the ability to design engaging English learning materials that align with the specific needs of their students by getting 77,4%.

Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
19	I am able to deliver lessons that effectively integrate English materials, technology, and pedagogical approaches in a coherent manner	0	67,7	32,3	0	0

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Ability to implement Technological Knowledge(%)						
No.	**statement**	**SA**	**A**	**N**	**D**	**SD**
20	I am able to select technology that serves to enrich the content of English lessons.	9,7	77,4	12,9	0	0
21	I can choose technologies to use in the classroom that can improve what I teach, how I teach, and what students learn.	6,5	80,6	12,9	0	0
22	I can help others coordinate the use of content, technology, and teaching approaches	9,7	45,2	41,9	3,2	

On the twenty-first statement, Pre-service English Teachers able to select technology that will enhance my methodology for teaching English in the classroom. The results are 6,5% Strongly Agree, 80,6% Agree, 12,9% Neutral, 0% Disagree and 0% Strongly Disagree. It can be concluded that Most of the respondents agreed that they can choose the technology to be used in the classroom that can improve what they teach, how they teach, and what students learn. It can be seen that the components contained in TPACK greatly affect the quality and purpose of learning.

To corroborate the findings of the questionnaire, the researcher conducted interviews with the objective of obtaining further data that was in line with how pre-service English teachers conceptualize a component of TPACK, namely Technological Pedagogical and Content Knowledge (TPACK). The researcher therefore posed the following question:

The objective was to ascertain how English language education PLP students integrate or implement technology, pedagogy, and content in learning. The researcher will present a selection of illustrative responses from the 10 participants who answered the question.

P.1: "I encouraged the students to develop a greater sense of motivation, thereby fostering a more enthusiastic approach to learning." In order to facilitate comprehension, I utilize an engaging PowerPoint presentation. Furthermore, during examinations, I utilize quizzes to enhance the learning environment and facilitate comprehension.

P.2: I motivate the students and inquire about their progress. Subsequently, the objectives and learning points are presented through the use of PowerPoint or videos sourced from YouTube. Subsequently, the students are divided into smaller groups for initial discussion. I encourage student participation in the classroom by posing questions and inviting responses. Furthermore, evaluation and individual assignments are incorporated into the lesson. At the conclusion of the week, students will be rewarded for their efforts, which should serve to enhance their enthusiasm for the subject matter.

P.3: At the outset of the learning activity, the learning objectives for the day were presented, and students were encouraged to participate. In order to facilitate the

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learning process and enhance student comprehension, I utilize technology in the form of PowerPoint presentations. Additionally, I employ the Spin application to facilitate the distribution of tasks, which I then disseminate via the WhatsApp group.

P.4: "Furthermore, I encourage students to engage actively in the learning process." Subsequently, I elucidate the material. Subsequently, I evaluate the learning.

On page 5, I begin by motivating the students and inquiring about their well-being. Subsequently, I form small groups, in which the students engage in discussion of the preceding material. Furthermore, I provide students who demonstrate active engagement in the classroom with the opportunity to inquire and direct their attention to individual students.

P. 7: "I initially present the learning objectives to the students, followed by motivating them before the commencement of the learning process. Additionally, I convey the material points that will be covered with the aid of technology, such as PowerPoint." The current pedagogical approach is student-centered, with the objective of fostering greater student engagement in the learning process. This can be achieved by forming small groups.

P.9: The learning objectives are first explained, and students are motivated. To elucidate the material, I utilize PowerPoint, thereby rendering the learning process more engaging and facilitating greater comprehension. Subsequently, I employed Webspin to ascertain the composition of the groups for the presentation task. Subsequently, after the activity, a brief evaluation of the learning outcomes is conducted, and commendations are bestowed upon students who have demonstrated exemplary engagement and comprehension.

Based on the data above, The participants indicated that the learning process begins with the provision of motivation and the conducting of brainstorming sessions, to facilitate the entry of the material into the students' minds. To make the learning process more engaging and to encourage students to As previously stated by the participants, the learning process begins with the provision of motivation and the facilitation of brainstorming sessions, to encourage students to engage in critical thinking. The utilisation of technology, including tools such as PowerPoint, video, audio, and others, is employed to enhance the learning experience, making it more engaging and appealing to students. Additionally, technology is employed to foster a conducive learning environment, such as through the use of a projector and the Webspin application for the creation of discussion groups. The evaluation and recognition of students who demonstrate active engagement in learning are also practices employed by the participants. This approach has been observed to foster enthusiasm and motivation among students, leading to a more positive outlook toward the subsequent lesson. The questionnaire responses and interview results collectively indicate

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that respondents have effectively integrated the TPACK framework and its components into their teaching practice. Participants elucidated that there are numerous ways to conceptualize TPACK in learning, including the utilization of technology such as PowerPoint, Canva, Google Forms, Quizizz, Word Wall, and a plethora of supplementary learning content, such as videos and audio, accessible from the Internet and social media. Furthermore, participants conceptualize pedagogical knowledge in terms of approaches to student learning, such as checking student understanding through questions at the end of a learning session and providing approaches and motivation to students who are introverted, less responsive, or hyperactive. Participants also evaluate the concept of learning content in terms of how far students understand and are interested in the material.

The data collected from the questionnaires, interviews, and reflective journals indicates that the respondents have implemented all six TPACK components: Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Knowledge (TPK).

Pre-service English teachers' challenges encounter in implementing TPACK

In response to research question number two, this study presents a description of the data collected on the challenges encountered by pre-service English teachers in implementing TPACK during teaching practice on an independent curriculum. The data analysis was conducted through interviews, to obtain a more in-depth understanding of the subject matter. The findings of this study were derived from the responses of 10 participants from the English Language Education program who had engaged in the teaching practice program.

> "Please describe the challenges you have encountered in implementing TPACK in learning."

Based on the 10 participants who answered, the researcher will show some examples of answers that were mostly stated by students below:

P.1: "In the context of the classroom, students tend to exhibit a lack of responsiveness to the challenges presented." Therefore, the learning process is not optimal. The challenge for me is the lack of mastery of technology. For example, the use of quizzes or word walls alone is insufficient.

P.3: If students are unresponsive to the learning material, this presents a challenge. From my perspective, the issue lies in my inability to establish a productive rapport with my students, which has hindered my ability to effectively engage them in the learning process. Furthermore, the material is not always presented in an engaging manner.

P.4: "The challenge is to innovate in creating learning content so that students are not bored." If the facilities in the school are sufficient and adequate, it is likely that English learning in the school will be delivered effectively.

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P.7: Some students may lack confidence, which could make it challenging for them to focus on learning.

P.8: "One of the most significant challenges I frequently encounter is the unreliability of internet connectivity, coupled with the lack of adequate or even limited facilities." This significantly impedes the efficacy of learning activities, as the aforementioned issues result in a reduction in learning time and an increase in student disengagement and a lack of focus.

P.9: "It was observed that when learning occurs via a smartphone, a considerable proportion of children express discontent over the lack of a quota." This impedes the learning process. Furthermore, the school's lack of provision of WiFi hinders students' ability to utilize this facility for study purposes. Additionally, I face challenges in approaching students who are reticent, which hinders my ability to ascertain their comprehension of the material I have conveyed.

The results of the interviews indicate that several challenges in the implementation of TPACK originated from students, school conditions, or the respondents themselves. Additionally, the respondents asserted that teachers must continuously innovate and develop creative solutions to overcome these challenges to ensure the continued effectiveness of learning.

Strategies Employed By Pre-Service English Teachers To Implementing TPACK

In response to research question number three, this study describes the data collected from pre-service English teachers regarding their strategies for addressing the aforementioned challenges. To obtain more in-depth data, the data analysis was conducted through interviews. The results of this study were obtained from 10 respondents from the English language education study program who have participated in the teaching practice program.

"what strategies do you apply to face the challenges of implementing TPACK in learning?"

Based on the 10 participants who answered, the researcher will show some examples of answers that were mostly stated by respondents below:

P.1: " I try to invite students to be more responsive so that the class is more conducive and also more exciting. And also for the media, I study more media so that students are also interested"

P.3: "I usually take an approach, for example during breaks, now I invite communication with these introverted children. Then to make the material more interesting, I usually look at references, for example on YouTube or in articles"

P.5: "The strategy that I do so that I can approach these students is by asking questions directly after learning"

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P.6: "To face these challenges, teachers themselves need to have other methods besides projectors, besides PPT. Maybe students can be asked to look at YouTube, on their respective cellphones. So it does not only depend on the facilities at school"

P.8: "I need to be able to have other ideas if there are problems that hinder me, the important thing is that I must always have a personal internet connection available so that I can access the prepared material if it is via the web. If I cannot use technology at all then I must be able to do manual learning by utilizing the blackboard and books. I also give them the opportunity to discuss so that they can deliver like a presentation"

P.9: " I often give the school wifi password to students or provide hotspots so that children can still do learning using their smartphones. Then to deal with quiet students, I will try to ask questions related to the material that I have conveyed to them. So that I know whether they have understood or not about the material"

P.10:"To create a more active and responsive class, I use various forms of brainstorming so that students have an idea of the material to be covered"

DISCUSSION

In this section, the researcher focuses on discussing the data related to theories and previous studies that focus on this research. Overall, the results of questionnaires, interviews, and reflective journals found that in a self-paced curriculum that cannot be separated from technology, respondents are also able to adapt. This is following the learning framework, namely Technological pedagogical and content knowledge (TPACK), This theoretical framework is designed to facilitate an understanding of the knowledge required by teachers for the integration of three key areas: technology, pedagogy and content according to Yoldiz (2017) claimed that TPACK is not just about knowledge of technology, rather, it entails the integration of technological knowledge with pedagogical and content knowledge, to create meaningful and engaging learning experiences for students (Yıldız 2017). In addition, students are also required to be more interesting and active, it is therefore essential that pre-service English teachers can adopt a pedagogical approach, and the quality of the content they teach is also of great consequence

Such as the initial aim of the research, namely investigating pre-service English teachers in implementing TPACK according to the experience they have had, which of course will be different for each individual, as explained by David (1988) that experience can be defined as knowledge or skills obtained through direct experience. or indirect. Experience involves an individual's interaction with the surrounding environment, either through observation, experimentation, or direct interaction with a situation or event (David Lewis 1988). So that the results obtained are valid and there is data as evidence.

Another statement was also made by Stratton & Olson (2023) that based on experience, a person

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can feel or understand the effects of a situation or action they experience (Stratton and Olson 2023). This also supports the results obtained by researchers where data was obtained from the experiences felt by pre-service English teachers in integrating TPACK during teaching practice. Then the respondents explained based on what they experienced while implementing TPACK.

The results of the three data collection methods show that participants explained there are many ways to conceptualize TPACK in learning such as utilizing technology such as PowerPoint, Canva, Google Form, Quizizz, word wall and various supporting learning content such as video and audio that can be accessed from the internet and social media. Participants also conceptualize pedagogy knowledge to approach students such as checking student understanding through questions at the end of learning and providing approaches and motivation to introverted, less responsive, and hyperactive students. It can be claimed that participants have good knowledge about TPACK and a high ability to implement it. And supported based on the questionnaire distributed through Google Forms at question points 1-22. The questionnaire results show that more than half of the respondents stated that they can integrate technology, pedagogy, and content in learning. This is also supported by the respondents' answers from the interviews that explain their process of implementing TPACK and its components. In addition, most respondents also felt the benefits of using TPACK in learning. Besides integrating TPACK, it also develops students' mindsets and creativity. However, the implementation of TPACK does not always run smoothly considering its very complex components, therefore this study also identified challenges and obstacles originating from students, limited facilities, facilities, and infrastructure in schools, and internal factors such as respondents' lack of understanding in innovating in designing learning content.

In the previous study, the researcher did not find a discussion of challenges and strategies in implementing TPACK. This is because the focus of previous researchers was only to analyze the ability to implement TPACK during online learning. So in this study, the researcher found several challenges and difficulties that occur when pre-service English teachers implement TPACK and its components during teaching practice in the classroom. External challenges come from students such as lack of responsiveness in learning and limited facilities such as internet networks and projectors, because the use of technology requires an internet connection. So without a stable internet network, the technology implementation process becomes constrained. While internal factors come from the respondents themselves such as lack of innovation and approaches to these less responsive students. However, from these challenges, respondents have strategies to solve them, starting from more approaches to students outside of class hours, providing alternative learning aids, and personal internet availability. While the strategy to face challenges from the respondents themselves is to increase references and observations to increase insight into TPACK and its application.

From the data discussed aboveIt can be surmised that the investigation of the application of TPACK during teaching practice by pre-service English teachers in the independent curriculum received a

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positive response that they have integrated it with a high scale. The implementation of TPACK facilitates the acquisition of knowledge and skills among students and pre-service English teacher . Students are more active and confident and respondents can create an effective classroom. Although there are many benefits, there are still difficulties and challenges faced when implementing TPACK and pre-service English teachers have implemented relevant strategies to face these challenges.

This research contributes to paying attention to the skills and readiness of pre service English teachers before teaching in the classroom, especially for the study program or personal pre-service English teachers. the complex framework makes TPACK vulnerable to finding problems in its implementation so that it needs basic knowledge that must be understood and trained continuously.

CONCLUSION

After researching pre-service English teachers, the researcher found the results described in chapter four. In light of the findings and discussion, the researcher draws several conclusions regarding pre-service English teachers' experience in implementing TPACK during teaching practice on independent curriculum. In the following, the researcher elaborates on the conclusion which will be divided into three parts, namely the experience of pre-service English teachers in implementing TPACK, challenges, and strategies faced in implementing TPACK.

Respondents' experience in integrating TPACK during teaching practice based on research question number one how do pre-service English teachers conceptualize TPACK and its components, participants explained that there are many ways to conceptualize TPACK in learning such as utilizing technology such as PowerPoint, Canva, Google Form, Quizizz, word wall and various supporting learning content such as video and audio that can be accessed from the internet and social media. Participants also conceptualize pedagogy knowledge to approach students such as checking student understanding through questions at the end of learning and providing approaches and motivation to introverted, less responsive, and hyperactive students. Participants also evaluate the concept of learning content based on how well students understand and are interested in the material This is also supported by a high presentation that 67.7% agree that they can teach lessons that combine English materials, technology, and teaching approaches appropriately. In addition, 19.4% of pre-service English teachers strongly agreed that they can choose technology to be used in the classroom that can improve what they teach, how they teach, and what students learn. So it can be concluded that on average, the participant has implemented TPACK in their teaching practice.

The result of research question number two what challenges do pre-service English teachers encounter in implementing TPACK during teaching practice on independent curriculum there are several challenges and obstacles in its application because the TPACK framework is very complex which is a combination of technology, pedagogy, and content. These challenges include students who are less responsive, and sometimes difficult to conducive. Besides that, the limited school facilities such as projectors and internet networks or WIFI are a significant challenge.

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Then the challenge of respondents who must always innovate to create interesting learning concepts, this certainly needs a strong process and consistency.

With challenges of course a strategy is needed to solve them. The data shows that respondents have alternatives to face challenges in implementing TPACK, such as making a second plan if there are problems related to technology, for example using videos from the internet which are shared with students via a link if there are problems with the projector. Then to deal with less responsive students, by frequently asking questions and making approaches outside of class hours, using an emotional approach will help openness between the pre-service English teacher and the students. Finally, respondents tried to increase their knowledge about TPACK by frequently viewing and searching for references regularly. This will develop their abilities and knowledge about technology, pedagogy and content to be integrated into learning.

The data above implies a correlation between this research and the respondents, whereby, following the receipt of interviews and other data collection processes, their insight into TPACK has increased. This is because they are aware that the knowledge and ability to integrate TPACK is crucial to be prepared in advance of teaching in the classroom. This also provides an evaluation for the study programme to pay attention to materials about TPACK to be introduced to pre-service English teachers.

SUGGESTION

In light of the findings that emerged from this study, the researcher provides the following suggestions: for participants (pre-service English teachers) to continue to hone their skills regarding technology, pedagogy, and content by looking at references and classroom observations to prepare for teaching in the future, not focus too much on providing new methods but rather evaluate them according to students' needs, to researchers to enrich researchers' insights into the TPACK framework. As a researcher's self-evaluation material, a teacher must be mature in various fields and skills such as technology, pedagogy, and content mastery for provision in designing effective learning later, for other English Language Education, it is suggested that English education study programs improve the abilities of pre-service English teachers by including the TPACK framework in courses or making special training for the introduction of TPACK, and for other researchers, it is suggested to conduct and develop this research by expanding the research problem and participants, focusing more on the issues discussed in future research which are still related to pre-service English teachers' experience in implementing TPACK during teaching practice on independent curriculum.

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