

CHAPTER IV

FINDINGS AND DISCUSSION

This chapter presented all of the research findings and the comprehensive discussion of the research. The researcher discusses the research findings related to the implementation of TPACK framework performed by Pre-Service English Teachers during Teaching Practice Course II and the challenges they faced in implementing the TPACK framework during Teaching Practice Course II. These findings were examined using the Thematic Analysis (TA) technique, which involved analyzing the data in response to the research questions posed. The findings and discussions are presented in a systematic manner to ensure their representativeness, as demonstrated:

A. Findings

The researcher found some findings and described the result of the implementation of TPACK framework performed by Pre-Service English Teachers during Teaching Practice Course II. When presenting the findings, the researcher carefully noted the most common themes and categories that emerged from the pre-service teachers' teaching process and the pre-service teachers' interview answers during data gathering stage. The topic and categories that emerged from the process of gathering and analyzing data are shown in the following figures. Furthermore, based on the data obtained by the researcher, the followings are the findings:

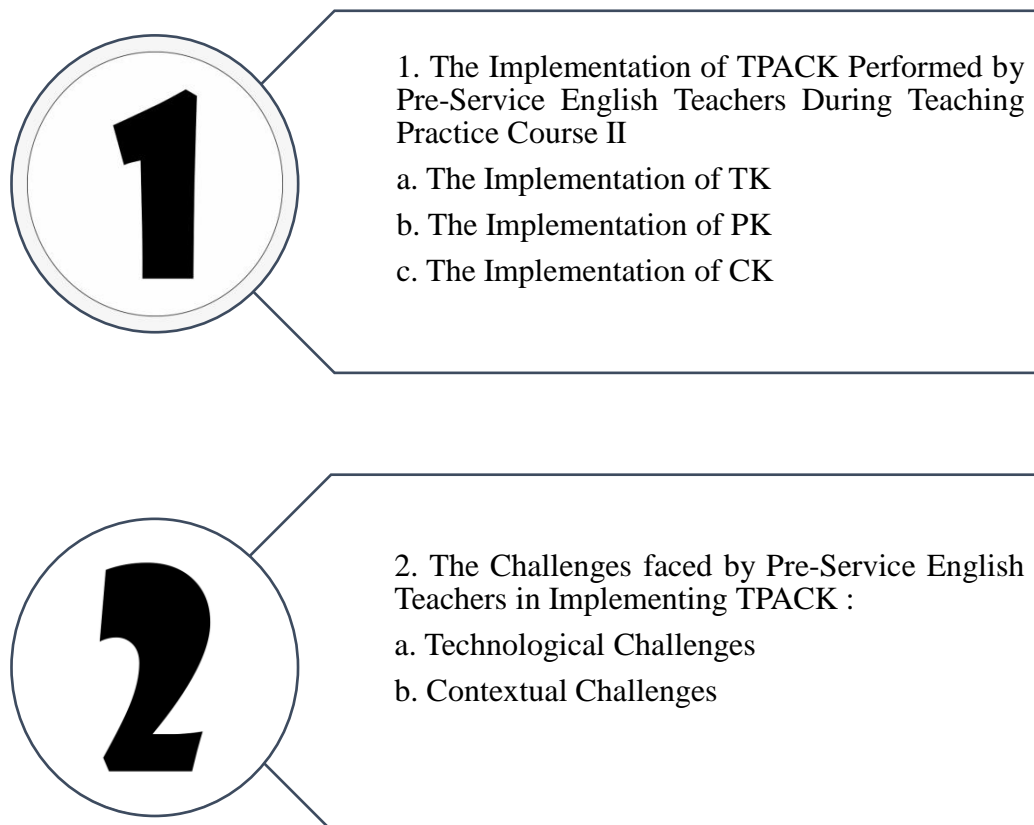


Figure 4.1 Thematic Categories of the Findings

1. Observation findings

Classroom activities was carried out to obtain qualitative data regarding the implementation of TPACK performed by Pre-Service English Teachers, this observation focused on any kinds of technology-enhanced learning activities performed by pre-service English teachers which represented the TPACK implementation and the challenges occurs during their teaching practice course II. There are three primary TPACK domains that should be represented by pre-service English teachers during their teaching practice course, among them namely, Technological Knowledge (TK), Content Knowledge (CK), and Pedagogical Knowledge (PK). In addition, as they are able to integrate these three domains successfully, it can be stated that they have enacted TPACK framework in their learning. To conduct this observation the researcher should carefully observed and took notes of the pre-service teachers activities which represented the integration of TK, CK, and PK.

The researcher gathered the data by closely observing the class of teaching practice course activities taking place at SMAN 3 Banjarmasin, MAN 2 Banjarmasin, SMPN 23 Banjarmasin, and SMAN 7 Banjarmasin for total ten observations and ten participants. The researcher conducted those ten observations during teaching practice course II from August until September.

The researcher conducted classroom observations by joining the class when the Pre-service Teachers (PsT) has their schedule to teach.

Additionally, the researcher obtained permission from the school authorities and the respective pre-service teachers to observe the class activities silently. The researcher's role is a passive participant in their course. The researchers provided a TPACK observation checklist that is modified based on TPACK framework by (Mishra & Koehler, 2006) and field notes regarding the teaching and also made field notes regarding the teaching and learning activities. The researcher conducted those ten observations during teaching practice course II from August to September. The researcher has conducted ten observations in total for the four schools. The researcher presented the findings by grouping participants into four groups based on their teaching practice locations. This approach was used to simplify and facilitate the presentation of the findings in a simple and flexible manner. The following tables reflected the teaching practice course II observations as the qualitative findings in this research.

Table 4.1 TPACK Observable Activities and Domains during TPC II Performed by Pre-Service English Teachers

Date	: 10 th August 2023
Topic	: Countable & Uncountable
Class mode	: Face-To-Face (Offline)
Time/Duration	: 2 hours

Classroom Activities	TPACK Enactment Activities
<ul style="list-style-type: none"> - PsT greeted and checked students attendance by calling their name and fill the presense list - The PsT conducted a little game called “Boom, Clap, Candy” - The PsT give a reward to students by giving them candy - The PsT introduce the content by giving them a guiding question - The PsT started to explain the material (Countable and Uncountable) using slideshow and her explanation - The PsT asked the students if there is unclear understanding 	<p>PsT conducted a little game to increase students motiation/encouragement</p> <p>PsT rewarded the students with a candy</p> <p>(Enhance Students Engagement and Motivation)</p> <p>PsT give a guiding question to introduce the content through brainstorming (Strategy to Set the Stage for Learning)</p> <p>PsT used an interesting and interractive designed slideshow to deliver the content (Maximize Learning Through Technology aids/TK)</p>

<ul style="list-style-type: none"> - The PsT showed a some pictures and asked the students whether it is countable or uncountable - The PsT moved to the next explanation about “The Use of Is and Are” - The PsT showed students some pictures with a blanked words on it and asked the students to identified and fill the blanks with “Is” or “Are” - The PsT explained “The Use of a few, a little, many, and much” - The PsT showed some pictures (same way with the previous one) and asked the students to identified - The PsT shared some picture paper and asked the students to go in front of the class and classified the pictures “Countable or Uncountable” 	<p>It is seemed that PsT used TPR method to be employed in her classroom, students are very active at every PsT instruction given (Strategy to Enhance Students Engagement and Motivation)</p> <p>PsT allowed the students opportunity to ask related to the explanation given (Providing Opportunities for Students Interaction and Clarification)</p> <p>PsT give full explanation related to “The use of IS and ARE, “”a few, a little, many, and much” (Able to Teach Specific Language Concepts)</p> <p>PsT showed students some pictures (visualized example) and ask them to identified it based on the concept taught (Assess Students Understanding)</p>
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<ul style="list-style-type: none"> - The PsT divided students into several groups and identified the sentences with their groups - The PsT checked the result together with the students - The PsT gave students chance to ask if there is they did not understand - The PsT evaluated the students' understanding related to all materials given by showing them some multiple choices questions on the projector - The PsT gave students a homework to do - The PsT along with the students summerized all the materials have been given 	<p>PsT divided students into several groups to identified a sentence related to the concepts taught with their peers</p> <p>(Fasilitating Group Activities for Collaborative Learning)</p> <p>By the end of the explanations/class the PsT assess students understanding through assignments and summerized today lesson together (Checking Students Understanding Through Assessment and Summerization)</p>
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Date : 10th August 2023
 Topic : Present Continous Tense & Past Continous Tense
 Class mode : Face-To-Face (Offline)
 Time/Duration : 2 hours

Classroom Activities	TPACK Enactment Activities
<ul style="list-style-type: none"> - PsT greeted and checked students attendance by calling their name and fill the presence list - The PsT asked students some questions such as “what is your friend doing?” or “what were your mother cooking this morning?” to introduce the content - After students answered the questions, the PsT started to explain the material (present continous tense) using powerpoint - PsT allowed students to ask the given explanation if there are still unclear understanding - The PsT moved to the next explanation about “Past Continous Tense” 	<p>PsT give a guiding question to introduce the content through brainstorming (Strategy to Set the Stage for Learning)</p> <p>PsT able to used a simple designed powerpoint to deliver the material, but it seemed a little bit too much words on the PPT (Maximize Learning Through Teachnology aids/TK)</p> <p>PsT allowed students to ask questions and discussing the results with them (Providing Opportunities for Students Interaction and Clarification)</p>

<ul style="list-style-type: none"> - The PsT asked some students a questions related to the material given by calling their names - PsT divided students into several groups to do pocket chart game, PsT showed students some pictures on the Projector screen (using Msword) and asked them to describe the pictures using “present continous tense and past continous tense” patterns - The PsT and the students discussed the results of the pocket chart answers - PsT allowed students to ask the given material - The PsT asked some students to re-explain and resume today material (present continous tense & past continous tense). The PsT assissted students to re-explain the material. 	<p>The PsT explained the material in detail and able to differentiated the both concepts well (Deep Understanding of The Subject Matter)</p> <p>PsT divided students into several groups for pocket chart game to practice more the material given (Fasilitating Group Activities for Collaborative Learning)</p> <p>PsT used Microsoft Word to display pictures for pocket chart game (Use of Technology to Enhance Learning Activities)</p> <p>By the end of the lessons the PsT assess students understanding through assignments and summerized today lesson together (Checking Students</p>
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<ul style="list-style-type: none"> - PsT distributed students a paper containing questions (fill in the blanks) related to the topic - PsT closed the lesson by saying salam 	<p>Understanding Through Assessment and Summerization)</p>
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Date : 29th August 2023

Topic : Narrative Text

Class mode : Face-To-Face (Offline)

Time/Duration : 2 hours

Classroom Activities	TPACK Enactment Activities
<ul style="list-style-type: none"> - PsT greeted and checked students attendance by calling their name and fill the presence list - The PsT asked the students what are they know or have they heard about “Narrative Text - PsT asked students to read an example of narrative text - PsT appreciated students by giving applause 	<p>PsT asked the students what are they know about “narrative text” (Strategy to Set the Stage for Learning)</p> <p>PsT appreciated students by giving applause (Learning Encouragement)</p>

<ul style="list-style-type: none"> - The PsT conducted a little game called “Mango, Apple, Orange”. Students who are not focused during playing the games and lose, will answer some questions based on the previous narrative text example - PsT re-brainstorm the definition of topic, students explained the material based on their understanding at the first step - The PsT then gave a complete explanation in detail about the narrative text through prepared slideshows - PsT showed students a video of an example of narrative text on youtube entitled “The Fox and The Crow” - There were a problem with the sound system (speaker), but the PsT handled the problem by asking the students to access the 	<p>PsT conducted a little game and incorporated questions related to the narrative text to increase students motiation/encouragement</p> <p>(Enhance Students Engagement, Motivation, and Understanding)</p> <p>PsT used slideshows and YouTube video by attached the link in the slideshows (Maximize Learning Through Teachnology aids/TK)</p> <p>PsT explained the narrative text concept and providing examples in the form of YouTube video animation</p> <p>(Deep Understanding of The Subject Matter)</p> <p>PsT handled the sound system issue by asking them to access the video on their phones (Overcoming Technical Problems)</p>
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<p>video on their own phones (the PsT attached the youtube link on her slideshows)</p> <ul style="list-style-type: none"> - PsT gave students some sentences related to the previous video and asked the students to guess the meaning of underlined words - The students guessed those underlined words - PsT also asked the students to answer some questions related to the information that have given on the previous video in the comments collum - The PsT asked students to summerized the topic they have learnt before, PsT asked for one boy and one from girl - The PsT gave feedback and reviewed the lesson - PsT closed the lesson by saying salam 	<p>PsT asked students to guess the underlined words and answer some question based on informations from the video (Assess Students Understanding)</p> <p>By the end of the lesson the PsT asked students to summerized the topic, giving feedback and reviewed all the lesson (Checking Students Understanding Through Summerization)</p>
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Date : 3rd August 2023
 Topic : Offering and Refusing Help
 Class mode : Face-To-Face (Offline)
 Time/Duration : 2 hours

Classroom Activities	TPACK Enactment Activities
<ul style="list-style-type: none"> - PsT greeted, pray, and checked students attendance by calling their name and fill the presense list - The PsT re-introduced the previous meeting material - PsT opened the lesson by conducted a game called “Simon Says” - The PsT explained the material “expressions of offering help and responses” through attractive designed slideshows - With the guidance and direction of the PsT, students questioned things that are not yet known about the topic presented - PsT asked and guided students to read the expression of offering 	<p>PsT linked the material with the previous material (Strategy to Set the Stage for Learning)</p> <p>PsT conducted a little game called “simon says handsup” to gain their focus and attention (Enhance Students Engagement and Motivation)</p> <p>PsT explained the material through attractive slideshows (Maximize Learning Through Teachnology aids/TK)</p> <p>PsT explained the offering help expressions and providing examples in the form dialogue (Deep Understanding of The Subject Matter)</p>

<p>help on the screen with correct pronunciation</p> <ul style="list-style-type: none"> - The PsT appreciated what students did related to her instructions by praised them or giving applause - Students are seemed active and engaged during the teaching process - PsT asked students to practice the topic in front of the class by asking them to perform a dialogue on her slideshows - The PsT along with students discussed which are the expressions of offering and responding help from the dialogue they have read - PsT gave students opportunity to ask a question related to the given explanations - The PsT evaluated their understanding by giving them assignments (fill in the blanks of 	<p>PsT asked and guided students to read the expression of offering help on the slideshows (Enhance Students Engagement and Guiding Learners)</p> <p>PsT appreciated students by praising and giving applause (Learning Encouragement)</p> <p>PsT asked students to practice by performing a dialogue in front of the class (Enhance Students Engagement)</p> <p>PsT along with students discussed the topic together (Collaborative Discussions)</p> <p>PsT evaluated students understanding through assignments (Fill in the blanks</p>
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<p>dialogue) that is attached on google site</p> <ul style="list-style-type: none"> - PsT also provided some fun quizzes game through Quizizz website for them to practice the topic more - The PsT closed the lesson by providing feedback on the activities carried out 	<p>dialogue) (Assess Students Understanding)</p> <p>PsT also provided some fun quizzes game through Quizizz game website</p> <p>(Enhance Students Engagements and Assess Students Understanding)</p> <p>PsT closed the lesson by providing feedback and summerized the lesson</p> <p>(Reflect the Learning Objectives and Reinforce the Lesson)</p>
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Date : 1st September 2023

Topic : Passive Voice

Class mode : Face-To-Face (Offline)

Time/Duration : 2 hours

Classroom Activities	TPACK Enactment Activities
<ul style="list-style-type: none"> - PsT greeted, pray, and checked students attendance by calling their name and fill the presence list 	<p>PsT asked the students related to their knowledge related to the material</p> <p>(Assess Students Prior Knowledge)</p>

<ul style="list-style-type: none"> - The PsT asked students knowledge related to the material “passive voice” - When the PsT was going to started to explain his material through powerpoint, there was a technical problem occurred. The PsT seemed unable to handle the problem. The PsT tried to show his slideshow directly through his laptop instead of looking for another solutions - PsT ended up by elaborating the material manually through whiteboard not using technology. The PsT elaborared the material by using contextual approach or taking example of real world events - The PsT gave students opportunity to ask a question related to the material given 	<p>PsT encountering technical problems with PowerPoint indicates a challenge with technology tools (Technical Issues with Technology Tools)</p> <p>The inability to resolve the technical problem and resorting to manual elaboration on the whiteboard indicates a lack of readiness to handle such issues (Lack of Familiarity, Confidence, or Readiness in Using Technology)</p> <p>PsT elaborared the material by using contextual approach or taking example of real world events (Deep Understanding of The Subject Matter)</p> <p>PsT gave students opportunity to ask a question and asked the students to go in front of the class to make an example (Support Students Engagement)</p>
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<ul style="list-style-type: none"> - After PsT elaborated the material, he asked for one students to go in front of the class to make an example of Passive Voice sentence - PsT guided the student in making the example - PsT divided students into several groups and asked them to make a sentence using passive voice pattern - During the group activities the PsT monitor and guided students - The PsT along with students discussed the final result of the groups assessment - PsT asked students whether they understood the given material - The PsT concluded the given material in the end of the lesson 	<p>PsT guided students in making the example (Facilitate Learning)</p> <p>PsT divided students into groups and monitoring their activities (Promote Collaborative Learning)</p> <p>PsT asked students to made sentences using Passive Voice pattern and discussed the final result (Reinforce Learning and Assess Understanding)</p>
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Based on the results of the observations conducted by the researcher, it was found that most of participants who used technology in their teaching practice course II are aligned with the TPACK framework introduced by Mishra & Koehler (2006). There were indications showing the participants' understanding of mastering aspects or domains of TPACK such as Technological Knowledge (TK), which refers to teachers' ability to maximize learning through technology media, Pedagogical Knowledge (PK), which refers to teachers' ability to use effective teaching methods or strategies, and Content Knowledge (CK), which refers to teachers' knowledge or mastery of the learning materials. Furthermore, when teachers are able to integrate these three primary domains, the TPACK intersection will appear, resulting in the enactment of TPK, TCK, and PCK. However, there were still a small number of participants who did not succeed in implementing the TPACK framework concept in their teaching practices due to encountering several problems in its implementation, such as technical issues, limited resources, lack of preparation, and others. Consequently, they were unable to fulfill one or more domains of the TPACK framework.

2. Interview findings

The interview was transcribed by the researcher, who ensured an exact transcription of the participants' responses through the use of verbatim notes. On account of the fact that all participants was a non-

native English speaker, grammatical errors might have been constructed into their initial responses. The researcher subsequently made modifications to the initial responses while maintaining their core meanings in order to streamline the process of documenting themes and categories.

In this research, the researcher conducted a series of interviews with participants who had completed the teaching practice course II (PPL2). The interviews were conducted with four out of ten pre-service English teachers when the teaching practice course II was held, serving as participants in this study. The researcher limited the interviews to only four participants out of the ten, with each of the four interviewees representing the four locations where the teaching practice was conducted. This decision was made to ensure that the resulting data are accurate, detailed, and can be presented systematically and neatly.

a. Pre-Service English Teachers understanding in implementing the TPACK Framework

The implementation of TPACK in teaching can be seen through the three main domains in the TPACK framework, namely Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK). In this study, the researcher investigated the teaching performance of pre-service teachers during teaching practice and reflected it with the TPACK framework. When pre-service teachers who have mastered their teaching material use

technology tools to effectively present the material and are supported by appropriate methods or strategies that enhance the learning process, it can be said that these pre-service teachers have successfully implemented TPACK in their teaching performance.

The findings from the interviews revealed that it is critical to incorporate technology in a manner that aligns with the subject matter and prior knowledge of the students being instructed. This is due to the current circumstances in which technology has evolved into a necessity for educators to possess. The predominant forms of technology utilized by pre-service teachers in teaching practice course II are visual media, including PowerPoint, LCD, and video. The selection of technology is perceived as uncomplicated with regards to its integration and configuration within educational exercises. It is widely accepted that the technology has the potential to aid participants in effectively conveying material, thereby facilitating the successful attainment of learning objectives. Additionally, students are able to comprehend the lesson with relative ease due to the utilization of engaging media. Participants in the TPACK context implement technology using a variety of strategies that correspond to pedagogy and subject matter. This is due to considerations regarding participants, students, and the subject matter being instructed.

In coding the data, several relevant and meaningful units from the interview text transcriptions and observation notes were identified and categorized based on the TPACK framework enactment by Mishra & Koehler (2006). The researcher presented the data in detail and systematically as follows :

1) The Implementation of Technological Knowledge (TK)

a) Variations of Technology Used

There are several variations of technology tools in the form of software commonly used by pre-service English teachers, such as PowerPoint, Canva-designed slideshows, videos, and Google Sites. As for the hardware, pre-service teachers use LCD/projectors, laptops, and gadgets/phones.

PsT 1 revealed :

“During yesterday's PPL 2 there were several technologies that were used. The technological equipment that I often used was rich (software: Google site, PPT, wordwall (games/quizzes for children)) and for devices (hardware: laptop and projector).”

PsT 3 also revealed :

“Yes, I have used technology, including Instagram, YouTube, PPT, and videos that I combine PPT with. In terms of hardware technology, there are projectors and laptops (to access the material that will be taught), and cellphones (for students to access the material that I have created in PPT form).”

b) Maximizing Learning Through Technology as Teaching aids

Technology serves as a powerful tool to enhance the learning experience in the classroom. By incorporating various technological aids, such as multimedia presentations, interactive whiteboards, and educational software, teachers can create engaging and interactive lessons that cater to different learning styles. Overall, by leveraging technology as teaching aids, educators can create dynamic and effective learning environments that stimulate students' curiosity and facilitate deeper understanding of the subject matter. PsT 1 revealed :

“Also, attractive designs such as animated videos that include audio and visual aspects are also very important to attract student focus, but cannot be separated from the learning material to be conveyed.”

Pre-service teachers have expressed that the majority of students have a visual learning style and prefer learning that can visualize their learning material. Therefore, teachers adapt to their interests or needs by developing and creating learning materials into slideshows or videos as creatively as possible. PsT 2 revealed :

“The way I combine it is as creative as possible, for example, like when you observed me yesterday, at that time the material was about countable & uncountable, and at that time I used more visuals, because apart from me liking using them, the

children in the class also preferred learning using visual. Apart from that... I asked them what kind of learning they like and they answered "I prefer the one that uses technology Miss , the one that uses pictures", so I adjusted it."

Pre-service teachers also combine or integrate several editing applications to process and develop learning materials creatively, interactively, and attractively. Moreover, the use of this technology can also make learning more flexible in its implementation.

"..To combine them, I first create or design the material in Canva as attractively as possible. After finishing the slides in Canva, I download them and convert them into a video using the VN application. At the end of these slides, I also attach an animated video related to the material, which I previously downloaded from YouTube using a downloader link on a website (since I can't directly download it to the gallery through YouTube). After combining all these components, I upload the video to YouTube, and then I display it in class via the projector or students can access it themselves through their smartphones." Stated by PsT 3

By the utilization technological tools in learning process, the pre-service teachers can also improve the quality of learning such as motivation, activeness or student involvement in the learning process. PsT 3 added :

"The advantage is that some students become more enthusiastic about learning or their motivation increases because the media I use is in the form of visually and audibly engaging videos that I make as interesting as possible, so they do not get easily bored."

From the data that has been collected, it can be stated that the use of technological tools in learning classes has helped teachers a lot to explain their learning material and helped students to more easily understand the concept of the material.

2) The Implementation of Pedagogical Knowledge (PK)

a) Selecting Appropriate Teaching Methods, Techniques, or Strategies

PK involves understanding how students learn and selecting the best teaching methods based on the content, learning goals, and student characteristics. Teachers with strong PK can choose appropriate strategies to enhance learning, such as project-based learning or Group Discussion, ensuring technology is used effectively in teaching practices.

PsT revealed that the way they choose the right teaching method or strategy is based on the appropriateness of the method or strategy to the teaching material, class conditions, and student responses.

PsT 1 expressed that her method for determining the appropriate teaching method or strategy is by considering the nature of the material to be taught and whether it aligns with the content :

“For example, the material is cause and effect, so first look at the material to see which method is suitable, then go back and look at what the material is... because if we have determined the material, we can know what it should be like when we teach. For example, when it comes to grammar, I usually try not to just do lecturing, I usually use scientific approach, like I ask if this is like this, it's like that or this is what it's like, then later they will think, but for example, if I only do lecturing when asking for grammar, Yes, their response will be just yes”

On the other hand, PsT 2 revealed that she selected the appropriate teaching method or strategy by observing the students' responses to the instruction (whether it makes students more active and engaged):

“To determine the method, first look at whether this method will make students more active in class or not, then adjust it to the existing facilities in the class, because if the class is small it is rather difficult to use TPR (Total Physical Response), whereas if TPR requires students to do not stay in one place (in the sense that they actively move physically to respond to ongoing learning).”

In addition, PsT also revealed that they did a research for the most recommended effective teaching method or strategy through internet sources:

“Apart from adapting to students' preferences, interests and needs, I also carry out research such as tips for teaching well and effectively or how to teach well on sources on the internet such as articles or YouTube. During the Field Experience Practice (PPL) program, I integrating content, technology, and teaching approaches to create effective and engaging learning in the English classroom.”

Meanwhile, PsT 3 revealed that she chose the right teaching method or strategy by making observations and by conducting several trials using various methods to find out which one was suitable:

“Based on the results of observations that I found, the classes I attended were apparently different (some had high levels of proficiency and interest in learning, some had low levels, and some had both mixed in one class). So, I just try out what kind of teaching method, approach or technique they are suitable for, for classes where I have found what kind of learning is suitable I will continue with that learning method, and for classes that haven't yet I continue to try other things. new things which can improve their learning skills and interest”

Overall, by selecting and implementing appropriate teaching methods, techniques, or strategies, pre-service teachers can create meaningful learning experiences that effectively integrate technology and improve students learning outcomes.

b) Facilitating Students Various Needs and Level of Proficiency

PsT 1 revealed that she handled students various needs and level of proficiency by implementing pair work groups or collaborative learning:

“Later I will divide into 2 groups, for example this group has good knowledge and this group needs to be taught more, so at the next meeting I will repeat the material, so that those who already understand

this will teach it again to their friends who don't understand... That's why I will be there later. Give a pair workgroup so that there will be an even distribution of understanding of the material that has been taught. And usually I always give an assessment at every meeting to find out which one has mastered it and which one hasn't so that later I can combine it into one pair work group.”

PsT 4 has the same opinion by providing pair work group or collaborative learning activities to handle students with various needs and different level of proficiency:

“I also had the opportunity to create or divide students into several groups... so there they could share... I think from there I could also facilitate students with different levels of proficiency too... so they could share information with each other regarding the learning material..”

PsT 2 revealed that the way she facilitates students with different needs was by using teaching media or strategies that can cover all their needs:

“Usually I find out and ask what kind of learning style they like, so based on that I modify my learning to suit their needs/wants”

“So in essence, to meet their different learning needs, I use teaching media that can cover all their needs in a general/universal manner.”

On the other hand, PsT 3 revealed that she had some difficulty differentiating students according to their individual needs and proficiency levels:

“Personally, if I teach a class, it is quite difficult to separate it according to individuals, because maybe one month during PPL II is not enough to know what kind of student this is and what kind of student that

is, even though there are also some students who do seem interested or at their level. high learning or low interest in learning”

She added that the only way she knows students’ needs and proficiency levels was through reading activities, she revealed:

“So, before starting the class I usually ask them to read the story or narrative in their worksheet book, and sometimes there are students who are too lazy to read it and then there are also those who are enthusiastic about reading it. So from there I can assess which students have high interest in reading/learning and which students have low interest in learning”

c) Enhanced Students Motivation, Activeness and Engagement

PsT 1 enhanced students engagement in the learning process by providing opportunities for students to ask questions, providing fun games, and asked students to do presentation or performance:

“After every 15 minutes of explaining the material, I’ll ask like "do you understand" (make sure)..”

“For co-curricular/fun activities I usually use games, because they are allowed to bring cellphones, so I use everything including this cellphone, so they can use it for the games I make, to open material, watch videos I give them etc. . So I maximize the actual use of technology”

“I also provided a PPT which I gave for speaking practice, so at that time I divided them into 2 camps, the first as boys and the second as girls (read one conversation that I provided in the PPT), so why is that possible? did you say interactive? Because

finally they want to read and look at their friends to speak English”

PsT 2 revealed that using interactive teaching methods or strategies supported by the utilization of technology tools as teaching media that is designed attractively can enhanced students activeness and excitements :

“for example, by using technological assistance to deliver teaching content and also combining it with good or effective methods, for example as I explained previously, namely TPR (Total Physical Response) which can make students more actively participate in learning so that it is more memorable for them.”

She also clarified that by utilizing technology creatively and innovatively might increase students motivation and excitement, such as made an interesting PowerPoint by attaching attractive animation that can visualize the concept material:

“I will attach lots of pictures/animations to the teaching materials that I will include in the teaching media and reduce the writing in the teaching media, only the points that are highlighted are the points. In my opinion, using technology creatively and innovatively to design learning can increase student motivation, interest and involvement during the learning process.”

PsT 4 added that by creating interesting PowerPoint, such as attaching attractive pictures or animations that can describe the concept of the material being taught may increase students’ motivation and attention:

“I also add rich media that can support learning, such as examples related to the concept of the material I am teaching, then I also add interesting pictures that can describe these examples, so that they can increase students' motivation and interest.”

PsT 3 agreed by utilizing technology in classroom may increase students learning motivation, she revealed:

“In my opinion, the most suitable and impactful one is a strategy that applies technology in learning, such as when they learn English using teaching media based on audio and visual technology. Apart from that, I also saw that they were more enthusiastic when I moved their learning to the language lab where there are facilities that support technology-based learning.”

Overall, by implementing effective teaching methods or strategies and supported by the combination of the utilization of technology tools as teaching media may enhanced students learning motivation, activeness, and engagement.

3) The Implementation of Content Knowledge (CK)

a) Deep Understanding of The Subject Matter

Mastery of learning material is very important for a teacher. Therefore, a teacher is required to understand deeply and master the learning material well. PsT 1 revealed her opinion about how important it is to master the learning material:

“I think it's important, in fact very important, because why teach if we don't understand the material, even though there may be other friends who have difficulty conveying the material because they don't understand, so maybe the challenge is there (in delivering the material), but once again In my opinion... Usually, before teaching, I definitely do as much preparation as possible and deepen the material that will be taught.”

PsT 1 also indicated a strong understanding of the learning material, demonstrated by his ability to stimulate students' critical thinking about the subject through questioning and engaging in in-depth discussions with students about the material.

“Usually I give them material in PPT, then later they think about whether this statement is right or wrong (for example, the grammar is wrong or right). So I usually tend to use the question and answer method and hone students' critical thinking rather than lecturing. However, I provided the material because I already understood it, so I tried it so that the material could be communicated with the children”

PsT 2 indicated a strong understanding of the learning material, demonstrated by her ability to facilitate student learning by providing real-context examples of the concepts taught so that students understand the material concepts well.

“In my opinion, all the content can and does facilitate their language learning, because the examples I give them regarding this content are real examples or real contexts that exist in their environment. So, in my opinion, their language learning has been facilitated, and I not only teach but also actively participate in the class.”

In addition, PsT 2 expressed that by having well preparation and deepen the learning material well before teaching, a teacher will definitely be able to master the learning material:

“In my opinion, everything can be said to be proficient, provided that we study and deepen it first. As we teach, there must be a process for learning/mastering the content/material.”

In line with PsT 2, PsT 3 revealed that by preparing learning material independently can also enhance a teacher’s confidence in delivering the learning material in the classroom:

“..Whether you are proficient or not, overall... actually my mastery level is only around 70%, however... before teaching it is because I prepare and create the material myself directly. So,, automatically while making it, I also understand and deepen it. Apart from that, I also usually repeat the material that I have prepared a few minutes before I go to class. So, in the end because I did all the processes myself and I finally mastered them, my self-confidence increased from 70% to 100%.”

PsT 3 also indicated a strong knowledge of the subject matter, demonstrated by his ability to transform the material into engaging audiovisual formats, such as slideshows and videos. She revealed:

“I used YouTube media to show yesterday's learning material, first they saw/paid attention to all the main ideas of the material which I showed in the video while I explained it, then they watched an animated video/illustration related to the material after the

duration of the material part was finished, then At the end of the video there are instructions that I made for them, I asked them to make sentences/paragraphs using narrative text in the comments column on YouTube”

b) Assessing Students Understanding

Assessing students’ understanding of learning material in various ways is one of the aspects that indicates a teacher has a deep understanding of the concept of the material being taught.

PsT 1 assess students understanding related to the material by giving them opportunity to practice or implement the concept of the material through group assignments in the form of game. Therefore, the students can practice the material in fun ways:

“during a group discussion activity consisting of 3-4 groups, then I gave them a link which contained a game in the form of rearrange words (the material was passive voice at that time and I asked them to arrange the sentences so that they were correct and in accordance with the passive voice format)”

In addition, the PsT also guide students by providing the pattern formula on the LCD, so that the students can examine and reflect the concept into their work:

“On the wordwall, sometimes there are games where the sentences are random, and from there they use their critical thinking and discuss together to solve the problem, and when they discuss the grammar formulas that I teach, I also display them on PPT, so

they can see the formulas. the correct one and try to match it.”

PsT 2 assessed or checked students’ understanding in the middle of the lesson to avoid misunderstanding of the material concepts and keep them on track:

“I give them several questions or assessments related to the material they have studied or some simple questions related to the material that I include when I am explaining material (for example: if this means what, who knows, raise your hand, kids!!)”

In addition, she also combined modern teaching and traditional teaching, such as delivered her material through PPT and assess students understanding through Pocket Chart.

“I teach... countable and uncountable nouns using... slideshows (PPT) and pocket chart media for assessment. In the slide show, I present examples of.. (countable) and.. (uncountable) visually, in color, and which they are familiar with, ... making it easier for students to understand the difference between the two. I also included pictures that represent... countables and uncountables to give concrete examples to students. Apart from that, I use pocket chart media (traditional media) to practice the use of countable and uncountable in simple sentences, so that students can see and manipulate these words directly.”

By maximized the utilization of technology PsT 3 support and assess students understanding related to the material through technology tools:

“I used... YouTube to display yesterday's learning material, first they paid attention to all the main ideas of the material which I showed in the video while I

explained it, then they watched an animated video/illustration related to the material after the duration of the material part was finished, then at the end The video contains instructions that I made for them, I asked them to make sentences/paragraphs using narrative text in the comments column on YouTube”

In line with PsT 3, PsT 4 also support and assess students’ understanding through the utilization of technology tools in the form of website. He revealed:

“for example, for yesterday's questions (assessment) I also used the quizizz website... apart from that, I also used YouTube as a learning medium to explain the material... I used videos on YouTube related to the learning material.”

In conclusion, the teacher's ability to assess and cultivate students' understanding of the learning material through various ways demonstrates that the teacher has a strong grasp of the subject matter.

b. The Challenges faced by Pre-Service Teachers in Implementing TPACK

1) Technological Challenges

There was several technical issues occurred during the implementation of TPACK by pre-service teachers, such as tools errors, PsT 3 revealed:

“Yesterday, when I was going to show a video related to the material I was going to teach, there was a problem with the audio, due to the absence or damage to the sound system available there, so there was a problem when I wanted to play the video.”

“Then yesterday there was a sudden technical problem, namely my laptop that I was going to use had a problem, so I ended up borrowing the laptop of my PPL colleagues/friends.”

In addition, errors when using technological tools due to lack of accuracy can also be a problem. PsT 3 added:

“Yesterday there was a problem or obstacle, namely an error in inserting a link into the slide show that I made, and then I handled the problem by writing/correcting the assessment link (Link to Instagram) on the whiteboard.”

There was also several common problem that arose unexpectedly and beyond the PsT’s control. PsT 1 revealed:

"...or there are also some connectors that can't fit into my laptop..."

2) Contextual Challenges

PsT 2 revealed that mastering learning material may also be one of the teacher’s challenges, teachers must be able to process and adapt learning material so that it can be understood by students.

“In my opinion, the challenge is only in mastering the material, because we as teachers have to understand the material well and be able to master it, because it is also impossible in the slide show to just show the points, but we also have to explain it in detail, in depth, and in depth. language/words that are easy for students to understand. So, I think that's the only challenge.”

PsT 1 revealed that the allocation of learning time and several problems that arise unexpectedly and beyond control might also become one of obstacles.

“Problems or challenges during implementation may be found such as power outages which are out of control, or the internet,... Apart from that, the divided learning time is also a bit of a problem for me (so there are several meeting schedules that are cut into ISHOMA time by around 15-30 minutes)”

On the other hand, PsT 3 revealed that limited users of a certain platforms (technology tools) might also become a challenge, because not everyone used the same platform (technology tools).

“Then there was also a time when one of the students didn't have an Instagram account, whereas the assessment I made required students to answer/do it on Instagram...”

Classroom control and management when the utilization of technological tools in the classroom may also be one of the challenges, PsT 3 revealed:

“The downside is that they were using their cell phones yesterday for the assessment, so after they finished doing their work on their cell phones, some of them used them to open other applications outside of learning. So, we really have to supervise them carefully and carefully when they use the cellphone, there are also difficulties there in managing or supervising them.”

3. Document Analysis

In this research, the researcher provided documents analysis to support the finding data. The researcher analyzed participants' lesson plan documents, including the teaching materials, teaching methods or strategies, and the equipment or teaching aids that teacher used to support the learning process. By analyzed participants' lesson plans, the researcher gained a description of the participants' performance in

teaching practice course, particularly in integrating technology into the learning process. The whole documents in this research were gained directly from participants.

The documents analysis indicates that the utilization of technology in the context of TPACK framework in TPC II was prepared by the participants both in terms of material and technology that supports the teaching and learning process. The table 4.2 below illustrated the sample of participant's lesson plan.

Table 4.2 Sample of Participant's Lesson plan

D. Teaching Methods
Methods : Communicative Language Teaching (CLT),
 Cooperative Learning
Techniques : Question and Answer, PPP (Presentation, Practice,
 and Produce)

E. Learning Steps

Media	Tools/Materials	Learning Sources
<ul style="list-style-type: none"> • PPT • Google Sites 	<ul style="list-style-type: none"> • Book 	<ul style="list-style-type: none"> • English teacher's handbook (K-13) • Modified by teacher • liveworksheet./com

Session	Description	Material	Time Allocation
Preliminary Activities	<ul style="list-style-type: none"> • The teacher greets the students. • The teacher invites students to pray. • The teacher checks the attendance of students. • The teacher reviews the previous lesson. • The teacher conveys the competencies that must be achieved after learning. • The teacher prepares students psychologically and physically to participate in the learning process by giving games/ice-breaking related to the material to be studied. 		10 Minutes
Session	Description	Material	Time Allocation
Core Activities	<ol style="list-style-type: none"> 1. Students listen to various explanations about Offering Help by the teacher 2. Students observe social functions, structures, and linguistic elements 3. Students learn to determine main ideas, detailed information, and specific information from Offering Help 	Material : PPT	15 Minutes

	<p>4. Students are divided into groups based on counts 1, 2, and 3</p> <p>5. The teacher gives instructions about group assignments in front of the class</p> <p>6. In groups, students access the Google Sites website together with the instructions that have been given</p> <p>7. Students discuss and work on the Offering Help assignment on Google Sites in their respective groups.</p>	<p>Materials: PPT and Google Sites</p>	<p>45 Minutes</p>
Session	Description	Material	Time Allocation
Closing Activities	<ul style="list-style-type: none"> • The teacher and students conclude the material that has been studied. • The teacher and students reflect on today's learning experiences. 		20 Minutes
	<ul style="list-style-type: none"> • The teacher conveys the lesson plan at the next meeting. 		
	<ul style="list-style-type: none"> • The teacher invites prayer. • The teacher greets. 		

F. Assessment

- 1) Technique: Responding and answering expressions/questions orally
 - 2) Format: Oral question/interview
 - 3) Enthusiasm and enthusiasm in following the lesson
 - 4) Active Speaking
 - 5) Ability to carry out conversations/opinions
-

B. Discussion

The researcher has carried out qualitative research using the phenomenological study method to collect the field data. This research is conducted with the aim of raising awareness regarding the crucial role of teachers' proficiency in leveraging technology for instructional purposes. Moreover, this research focuses on identifying the implementation of TPACK performed by pre-service English teacher during Teaching Practice Course II (TPC II) along with investigating the challenges they faced during the implementation. In the discussion section, the researcher details the finding obtained from the data collection and analysis process. The main objective of this discussion is to provide answers to general and specific research question that have been formulated in the context of this research.

The researcher focuses on the following research questions when explaining the findings:

1. How is the implementation of TPACK by pre-service teachers in the English Language Education Department during teaching practice course II?
2. What are the challenges faced by pre-service teachers in the Education Department in implementing TPACK during teaching practice course II?

The research findings are connected to prior theories and studies on the use of the TPACK framework by pre-service English teachers through the usage of major themes and categories that arose from data gathering and analysis. The following description provides a comprehensive overview of the research questions that have been addressed:

- a. The Implementation of TPACK Framework by Pre-Service English Teachers During Teaching Practice Course II
 - 1) An Analysis of the Classroom Observation Findings

Several data that frequently appeared from the observations of teaching practices by pre-service teachers during the Teaching Practice Course were then analyzed, identified, and interpreted through themes and sub-themes systematically as described by Clarke and Braun (2017). There are three main indicators, or domains, within the TPACK framework that have been identified in research to assess teachers' teaching performance. These include pedagogical knowledge (PK), technological knowledge (TK), and

content knowledge (CK). The findings of the classroom observations are most accurately represented in figure 4.2.

Technological knowledge	Pedagogical Knowledge	Content knowledge
<ul style="list-style-type: none"> • PsTs has basic technology to used in classroom • Overcoming technical problem • PsTs could maximize the learning process through technology used supported by appropriate strategy • PsT used various technology media to support the learning process 	<ul style="list-style-type: none"> • PsTs are able to enhance students engagements and motivation • PsT provide opportunities for students interaction and clarification • PsTs assessed students understanding in several ways • Fasilitating group activities or collaborative learning • Providing game activities or ice breaking for students to enhance their motivation or understanding • Giving feedback and summarized the material 	<ul style="list-style-type: none"> • PsTs has deep understanding of the subject matter • PsTs able to provide QnA session with students to deepen the understanding • PsTs able to provide example and assessment that align with the concept taught

Figure 4.2 TPACK Framework Domain Implementation by Pre-Service English Teachers

As can be seen in figure 4.2, this research describes the three primary domains of TPACK framework considered by the researcher, focusing on the activities or performance of pre-service teachers in teaching using technology media and strategies that can support effective learning. Although the sequence or type of activities, technology, strategies used by teachers are not always the same, the concept remain identical. In this study, it was observed that almost all pre-service teachers have the ability to utilize technology and use it to modify learning materials to be more

engaging and easily understood by students. Moreover, some of the pre-service teachers were able to combine multiple technologies into a single learning session. Although some pre-service teachers failed to integrate technology into their teaching due to various obstacles such as technical issues, limited resources, or others. Furthermore, with sufficient preparation, all pre-service teachers have a good understanding of the materials they teach. Additionally, pre-service teachers are also able to implement effective teaching methods or strategies, or at least able to support technology-based learning.

This research identifies three main domains of the TPACK framework after analyzing the teaching performance of pre-service teachers during the teaching practice course. However, there are several indicators of intersection between other TPACK framework domains beyond the three main domains, such as Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), and Pedagogical Content Knowledge (PCK) that emerge when researchers analyze the activities or teaching performance of pre-service teachers. These intersections of TPACK framework domains occur as a result of the combination of the three main TPACK domains by pre-service teachers during the learning process, namely Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK). When the three main TPACK domains correlate with each other, three intersections

of TPACK domains emerge, combining the three main domains mentioned earlier. Additionally, in this study, researchers also investigate the difficulties encountered by pre-service teachers in implementing TPACK in the classroom. Therefore, the researcher elaborates and discusses the collected data specifically in the following section:

a) Technological Pedagogical Knowledge (TPK)

Based on the data collected through observation, interviews, and document analysis, the pre-service teachers demonstrate a good understanding of Technological Knowledge (TK) and Pedagogical Knowledge (PK). This is evident in how they use technology with strategies or methods that enhance student engagement during the learning process. For instance, when PsT 1 teaching countable and uncountable nouns using technology such as PowerPoint or interactive slide presentations, the pre-service teachers also employ strategies such as Game-Based Learning, Project-Based Learning, or Total Physical Response (TPR) to involve students more in the learning process. Moreover, she also incorporates engaging quizzes related to the concept of countable and uncountable nouns with visuals into her slide presentations to enhance student engagement and their understanding related to the concept taught. In addition, she also monitors and provide a clear instructions regarding the interactive quiz assessment. At the end of the activity the pre-service

teacher reflects and improve students understanding related to the concept by re-explain the material and correcting the answers along with the students. TPK refers to the comprehension of how the utilization of specific technologies in particular ways might alter the process of teaching and learning. This involves comprehending the pedagogical advantages and limitations of various technological resources in relation to pedagogical models and strategies that are suitable for different academic levels and developmental stages (Koehler et al., 2013). Additionally, (Alhamid & Mohammad-Salehi, 2024) mentioned that TPK shows how to use interactive technologies to meet students' needs, manage the learning environment, and support learning. Through the combination of technology-based learning media and the use of strategies that enhance student engagement and activity. Therefore, it can be concluded that the pre-service teachers have applied their knowledge of Technological Pedagogical Knowledge (TPK).

The significance of TPK is heightened due to the fact that the majority of widely used software applications are not created specifically for educational objectives (Matthew J . Koehler , Punya Mishra, 2013). The utilization of technological tools such as PowerPoint, template design in applications such as Canva, YouTube videos, Google Sites, or quiz websites such as Quizizz, is generally employed in work environments or for entertainment

purposes. Nevertheless, with the proficiency and creativity of pre-service teachers, they are capable of adapting, modifying, and developing these technological media to aid and facilitate student learning in the classroom. Therefore, TPK demands an innovative, open-minded, and forward-thinking approach to technology utilization, not for its intrinsic value but to promote student learning and comprehension as mentioned by (Matthew J . Koehler , Punya Mishra, 2013)

b) Technological Content Knowledge (TCK)

The pre-service English teachers tend to use PowerPoint (PPT) because they believe that using media such as PPT can accommodate various types of learning materials, as there are no specific limitations that can hinder the delivery of materials through this media. In addition, pre-service teachers express that although instructional media such as PPT are commonly used in education, there are many ways to maximize its use to present learning materials, such as through creative, engaging, and interactive designs that can increase student motivation and make it easier for students to understand the learning materials. PowerPoint can be utilized to enhance the visual appeal and efficacy of presentations through the incorporation of multimedia elements such as text, images, animation, and video. Users can effortlessly select pre-designed templates that are

organized according to their preferences in terms of color scheme, theme, or effect. Users can generate visually appealing materials with PowerPoint when they optimize its utilization. PowerPoint additionally can convert files to PDF format, thereby reducing the size of the presentation materials and rendering them more manageable (Osman et al., 2022).

(Schmidt et al., 2014) pointed that Technological Content Knowledge (TCK) pertains to the understanding of how technology might generate new representations for particular content. In this research, prior to determining and using specific technological tools as learning media, pre-service teachers first conduct indirect observations in the classroom to understand students' learning styles, needs, and interests. Additionally, pre-service teachers assess the potential of the technology to be used in enhancing student engagement and activity during learning. They do not only consider the potential of the technology from a technical standpoint but also evaluate whether the learning materials align with the technology to be employed. In conclusion, pre-service teachers are able to consider the alignment between technological tools and learning materials, and they are capable of developing and maximizing the synergy between these two elements. In conclude, teachers should recognize that employing a certain technology might alter the

manner in which learners engage in and comprehend concepts within a specific subject area. In line with the previous statement, (Matthew J . Koehler , Punya Mishra, 2013) stated that gaining insight into the influence of technology on the practices and understanding of a particular field of study is crucial for creating suitable technological resources for educational objectives. The selection of technologies both enables and limits the range of content concepts that educators can impart. Similarly, the selection of specific content has the potential to restrict the range of technologies that can be employed. Technology has the ability to limit the range of representations, yet it also can create new and diverse representations. Moreover, the utilization of technological tools can offer an enhanced level of flexibility in bridging these various representations.

c) Pedagogical Content Knowledge (PCK)

Based on the findings derived from the process of observations, interviews, and document analysis, it can be inferred that pre-service teachers exhibit an excellent comprehension and implementation of Pedagogical Content Knowledge (PCK). This is apparent from the manner in which pre-service teachers instruct, employing methods and strategies that enhance student engagement and motivation during the

process of teaching and learning, having well-prepared lesson plans, designing tasks or assessments that are attractive as well as capable of rigorously evaluating students' comprehension of the learning materials, and importantly, they demonstrate a profound mastery of the learning materials and are able to describe and demonstrate specific concepts associated with them. Therefore, pre-service teachers not only have a deep understanding of the content but also have a good grasp of the pedagogical aspects to effectively adapt methods or strategies that can support the delivery of learning materials. Therefore, the findings in this research are in line with the definition of PCK mentioned by Shulman (1986), Pedagogical Content Knowledge (PCK) refers to the knowledge that teachers possess about the most useful forms of representation, analogies, illustration, examples, explanations, and demonstration of a subject matter, in which makes it comprehensible to students. In addition, PCK goes beyond subject matter knowledge or Content Knowledge (CK) to include an understanding of what makes the learning of specific topics easy or difficult, the conception and preconceptions that students bring to the learning of those topics, and the way of representing and formulating the subject that make it comprehensible for students. In line with Shulman's definition of PCK, Mishra & Koehler (2006) defined that PCK

represents the blending of content and pedagogy into an understanding of how particular aspects of subject matter are organized, adapted, and represented for instruction. At the heart of PCK is the manner in which subject matter is transformed for teaching. This occurs when the teacher interprets the subject matter and finds different ways to represent it and make it accessible to learners.

d) Pre-Service English Teachers' Technological Pedagogical Content Knowledge (TPACK) Implementation during Teaching Practice Course II (TPC II)

(Ryan et al., 2017) stated that the term "pre-service teacher" refers to a student who is currently enrolled in a teacher preparation program. In order to obtain a teaching license, the pre-service teacher must fulfill all degree requirements, which include both academic coursework and practical field experience. Meanwhile, Teaching practice course (TPC) or what we are more familiar as Praktik Pengalaman Lapangan (PPL) is a required course for the students in faculty of Tarbiyah at UIN Antasari. It is a part of a teacher education program in which all the matters pertaining to the teacher occupation, along with teaching and learning activities that is done by the teachers or pre-service teachers and other assignments to apply and perform various kinds of knowledge, attitudes, and skills with the aim of

developing a professional teacher. Komba and Kira (2013) highlighted that teaching practice is an essential aspect of teacher training. Teaching Practice is designed to familiarize pre-service teachers with the realistic learning and teaching environments. Throughout the Teaching Practice, pre-service are observing a professional subject teacher in order to learn and acquiring their abilities, techniques, and classroom achievements. Simply, Khader (2012) stated that teaching practice may be described as a set of teaching techniques and strategies used in classroom interactions between teachers and students. Therefore, in the current research, pre-service teachers and the Teaching Practice Course II (TPC II) act as the subjects of the research.

Meanwhile, TPACK serves as the main object of this research, where pre-service teachers are investigated regarding their use of technology in their classroom teaching during the teaching practice course, aligned with the TPACK framework. The TPACK framework builds on Shulman's (1986) descriptions of PCK to explain how teachers' understanding of educational technologies and PCK interact with one another to produce effective teaching with technology. This concept then developed by (Mishra and Koehler (2006), Technological Pedagogical Content Knowledge (TPACK) serves as the foundation for effective technology-based teaching. To achieve

effective technology-based teaching, teachers need to have a deep understanding of how concepts are represented through the use of technologies, employ pedagogical strategies that effectively utilize technologies to teach content, comprehend the factors that influence the difficulty or ease of learning concepts, and be aware of how technology can assist students in overcoming challenges. Additionally, (Koehler et al., 2013) highlighted that TPACK includes three bodies of knowledge and intersections among them: Technological knowledge (TK), Pedagogical knowledge (PK), and Content knowledge (CK). Subsequently, the integration of these three main knowledge areas creates intersection points known as Technological pedagogical knowledge (TPK), Technological content knowledge (TCK), Pedagogical content knowledge (PCK) and these three intersection points are then combined as Technological Pedagogical Content Knowledge (TPACK).

Based on all of the findings in this research, as well as the discussions on PCK, TPK, and TCK parts previously, it can be concluded that the pre-service teachers are capable of optimizing learning through the use of technology and pedagogical methods or strategies that support and maximize technology-enhanced learning. For instance, it can be seen from one of the pre-service English teachers who used interactive slides show, PowerPoint,

or video incorporating visual elements, text, or videos, as well as website quizzes to assess students' knowledge and skills related to the learning material, this findings in line with (Lestari & Asari, 2022), participants utilize PowerPoint and videos the most frequently due to their user-friendliness, which leads to a favorable influence on students' comprehension of a specific topic and increased engagement in class. Furthermore, the combination of pedagogical methods such as game-based learning, project-based learning, collaborative learning, and others in the teaching process also indicates that pre-service teachers are capable to effectively implement technology-enhanced learning. Based on the findings of this study, pre-service teachers have a broad reference and knowledge of technology and its utilization for modifying and optimizing it in learning. They also have various ideas, methods, and strategies to enhance student motivation, engagement, and understanding of the learning material represented through this technological media. In addition, drawing conclusion from (Asfihana & Yansyah, 2022) study to support the current research findings, when establishing a project involving the application of technology, it is crucial to assess the students' knowledge of the strategies and methods for using it, rather than just the technology itself. Therefore, by effectively combine these three

components (Technology media, the representation of the material, and the manner in which the material represented through specific technology using the supportive strategies and methods), pre-service English teachers are capable to enact the TPACK framework in their teaching practice course.

b. The Challenges in implementing TPACK Framework Faced by Pre-Service English Teachers

Although pre-service English teachers indicate their capability to integrate technology into teaching in line with the TPACK framework, some of them encountered several problems and challenges that hindered their implementation of TPACK. In fact, two pre-service teachers failed to implement TPACK in their classes due to these issues. However, there were also many pre-service teachers who were able to overcome these challenges. Ramorola (2014) identified several obstacles to the integration of technology in the field of education, including the lack of technology policies, technophobia, limited resources, a shortage of qualified technology instructors, maintenance and technical issues, risks and security concerns, inadequate parental involvement, time constraints, and unfamiliarity with computer terminology. Furthermore, several challenges encountered by pre-service teachers during teaching practice courses are commonly encountered in technology-enhanced learning.

Encountering problems and challenges while teaching is considered normal and unavoidable, especially during teaching practice courses. Therefore, pre-service teachers are required to have a deep understanding and proficiency, particularly in the use of technology, pedagogical insights, and content knowledge to overcome any issues that may arise during the learning process. This is in line with the objectives of the teaching practice course according to Adekunle (2019) stated that the teaching practice prepared students for the realistic teaching abilities and competency required for a professional career as a teacher. It is the only opportunity for PSTs to acquire and apply their practical professional abilities.

a) Technological Challenges

Some obstacles faced by pre-service teachers in using technology in the classroom include tool errors, such as videos with audio issues or problems with the main device (laptop). Additionally, unexpected problems arose, such as issues with the connector between the laptop and LCD. These issues can occur due to a lack of in-depth understanding of how to operate technology properly. Therefore, in order to handle these problems pre-service teacher has to be creative able to find alternative solutions by preparing contingency plans and thoroughly understanding specific technologies before using

them in teaching. As demonstrated by PsT 3 when facing such challenges, he responded calmly and creatively. When encountering an error in his instructional video, she instructed students to access it individually through their own gadgets via a link provided by the pre-service teacher on the slide as a backup plan. This result in line with Taopan (2020), teachers must be creative and discover alternative solutions, such as using their own internet connection or using blended learning, which allows students to work online from home. Nevertheless, in addition to some pre-service teachers being able to handle sudden issues, several of them also prepared backup plans, such as bringing their own technological support equipment, preparing website links on the slide show in case of errors in the instructional video, and so on. Therefore, some pre-service teachers in case of unexpected issues made these preparations. In addition, as Pratolo & Solikhati (2020) stated in their study, the teacher has carefully considered the pros and drawbacks of various classroom scenarios, ensuring awareness for each possible situation. Through the preparation of a contingency plan, pre-service teachers can effectively prevent the occurrence of unforeseen circumstances within the classroom.

b) Contextual Challenges

Contextual challenges in implementing TPACK (Technological Pedagogical Content Knowledge) refer to the difficulties educators face when integrating technology into their teaching practice, taking into account the specific context in which they are working. These challenges involve factors specific to the teaching context, such as mastering learning material, allocating learning time, and managing classroom control when using technology. As shown in the previous findings, some pre-service teachers expressed that there were several difficulties that arose during the implementation of TPACK in their classes, such as mastering the learning materials. Pre-service teachers stated that this could be a challenge in integrating technology into teaching; teachers are required to master the content of the learning materials, which is crucial and impactful on teaching, in both creating and developing learning content through technology, and in the teaching process to students. Especially in the context of implementing TPACK, in addition to mastering teaching methods, techniques, or strategies (PK) and mastering the use of technology (TK), mastery of content knowledge (CK) by teachers is also crucial. Therefore, to establish the TPACK framework they need to go beyond all this three core

components (Content, Pedagogy, and Technology knowledge). It required comprehension of the representation of concepts through technologies, pedagogical strategies that leverage technologies in constructive ways to teach subject matter, knowledge of what makes subjects difficult or easy to learn, and how technology may assist redress some challenges that students experience (Koehler et al., 2013).

Furthermore, pre-service teachers also mentioned that the divided allocation of learning time is another issue that hinders the achievement of learning objectives. They expressed that the schedule or allocation of afternoon learning time divided with break intervals can be a factor inhibiting the success of learning, as it can trigger a decline in students' interest, motivation, or even concentration towards learning due to the delays. Therefore, the proper allocation of learning time is particularly important for promoting students' academic performance (Liu et al., 2023). In addition, according to NCERT (2023) Proper time allocation ensures that all subjects and activities in the curriculum receive adequate attention. It helps in maintaining a balance between core academic subjects, co-curricular activities, and extracurricular pursuits.

Another challenge faced by pre-service teachers is controlling the classroom situation during the use of technology.

Pre-service teachers expressed that when using technology in the classroom, especially allowing the use of gadgets for learning purposes, some students are slightly difficult to direct and control according to instructions. As a result, they use their gadgets for other activities outside the context of learning. Although in reality, some uses of mobile technology have a positive impact on technology-based learning, but it cannot be denied that permitting the use of mobile technology in the classroom can lead to issues such as students becoming noisy, disrupting the order of the classroom situation, and distracting students' attention from the learning delivered by pre-service teachers (Zeng, 2022). Classroom management is a fundamental skill set for teachers to facilitate learning for students. It is essential to the work of teaching and learning (Aldrup et al., 2018; Cho, Mansfield & Claughton, 2020). Therefore, having a good skill of classroom management plays an important role in basic teaching, especially when teaching with technology-enhanced learning.