Pre-Service Teachers' Perception and Vision about TPACK and Its Implementation

Arrizalu Arsa Ringotama

English Education Department, Universitas Sebelas Maret, Surakarta, Indonesia

email: arrizaluarsaringotama1@gmail.com

Pre-Service Teachers' Perception and Vision about TPACK and Its Implementation

Arrizalu Arsa Ringotama

arrizaluarsaringotama1@gmail.com

English Education Department, Universitas Sebelas Maret, Surakarta, Indonesia

Abstract: The need for educators to integrate the use of technology in the classroom is growing for the past few years. However, previous studies indicated that the use of Information and Communications Technology (ICT) is still at a low level of what the education program requires. Furthermore, it seems that in the field of language education, there is limited research focusing on pre service teachers (PTs). Therefore, to address this gap, this paper aims at investigating how the pre service teacher's understanding of the TPACK principle and how they will apply TPACK in their classroom. This mix-method study is using TPACK questionnaire and interview through a random sampling of 68 pre-service teachers of English Education Department of UNS. Furthermore, the results revealed that most of the participants understood the concept of TPACK well, and they also had various ways to apply it in their classroom. It is expected that knowing pre service teachers' (PTs) perceptions about TPACK in teaching and learning process that can be beneficial for both English Education Department programs and PTs, such as understanding the PTs' teaching abilities, development of the use of technology in teaching by pre service teachers in order to improve teacher department programs itself to develop the teaching practice with the support of technology. In addition, this study has implications for experts interested in the development and assessment of pre service teachers' understanding of teaching with technology.

Key words: TPACK, pre-service teachers, ELT, technology in education

Abstrak: *Kebutuhan para pendidik untuk dapat mengintegrasikan penggunaan teknologi di kelas semakin berkembang selama beberapa tahun terakhir. Namun, penelitian sebelumnya menunjukkan bahwa penggunaan Teknologi Informasi dan Komunikasi (TIK) masih pada tingkatan yang*

rendah dari apa yang dibutuhkan oleh program pendidikan. Lebih lanjut, tampaknya di dalam bidang pendidikan bahasa, ada penelitian terbatas yang berfokus pada guru pra-jabatan (PTs). Oleh karena itu, untuk mengatasi kesenjangan ini, penelitian ini bertujuan untuk menyelidiki bagaimana pemahaman guru tentang prinsip TPACK dan bagaimana mereka akan menerapkan TPACK di kelas mereka. Metode penelitian campuran yang dipakai menggunakan kuesioner TPACK dan wawancara melalui pengambilan sampel acak dari 68 guru dari, program studi Pendidikan Bahasa Inggris UNS. Lebih lanjut, hasil penelitian mengungkapkan bahwa sebagian besar peserta memahami konsep TPACK dengan baik, dan mereka juga memiliki berbagai cara untuk menerapkannya di kelas mereka. Para calon guru diharapkan untuk mengetahui persepsi guru tentang TPACK dalam proses belajar mengajar yang dapat bermanfaat baik bagi program program studi Pendidikan Bahasa Inggris maupun PTs, seperti memahami kemampuan mengajar PTs, pengembangan penggunaan teknologi dalam pengajaran oleh guru dalam rangka meningkatkan program departemen asal guru itu sendiri untuk mengembangkan praktik pengajaran dengan dukungan teknologi. Selain itu, penelitian ini memiliki implikasi bagi para ahli yang tertarik dalam pengembangan dan penilaian pemahaman guru pra-jabatan tentang pengajaran dengan teknologi.

Kata kunci: *TPACK, guru pra-jabatan, ELT, teknologi dalam pendidikan*

INTRODUCTION

Nowadays, the use of Information and Communication Technology (ICT) has been widely considered, as the media of teaching and learning process since the internet spread. Today's pre-service teachers are regarded as the up-to-date learners because they use technology every day and make them the most capable users of the technology itself and ready to use the ICT in their classroom. Although many social media such as Facebook, Whatsapp Messenger, YouTube, Schoology and many advanced technologies have become invisible from pre-service teachers' (PTs) daily lives (Szeto, Cheng & Hong, 2016), the use of ICT in the classroom, however, is still on the low level of what educational program expects.

Professional teachers not only need to manage content and pedagogical knowledge like informed by Shulman (1986, 1987) but also related technological expertise to achieve a broader collection of teaching plans for student's learning requirements in the teaching and learning process (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010) is needed, too.

Previous research conducted by Szeto, et al. (2017) which aimed to examine pre-service teachers' integration of technology in teaching various subject domains shows that using technology in teaching and learning process seems to be very popular among multiple subject teachers.

Most pre-service teachers tended to use technology in teaching. The technique that is often used is media online sources such as e-books and other digital resources. Students tend to love YouTube as one of the technologies they use because they can open it at home later. Similar studies conducted by Turgut (2017) describes the condition of self-perceived TPACK development of PTs enrolled in four-year ELT program through cross-sectional design revealed the fact that some participants reported that during their practicum and school visits, the practicum teachers are rarely using technology in their lessons and many of their teachers are lacking understanding about how to use technology in teaching.

Recently, Nazari, Nafissi, Estaji, & Marandi (2019) show that there are some differences in the understanding of technology between novice EFL teachers and experienced EFL teachers. Qualified teachers have on the one hand, considerable knowledge of PK and PCK on how to develop their pedagogical and content knowledge for their professional development. Still, they lack technical expertise, that they need a professional development course tailored to their needs for technology integration. On the other hand, novice teachers are significantly having higher scores in terms of TK, TCK, TPK, and TPACK. All these three studies show that TPACK is a crucial thing to develop. However, this kind of research, that reveals the understanding of TPACK of the pre-service teachers is still practically rarely conducted in Indonesia. Empirically, most studies of TPACK is only targeting the in-service teachers' knowledge of TPACK.

Therefore, this study is purposed to reveal the TPACK understanding of pre-service teachers and reveal the investigation of how they apply TPACK on their classroom. The research data is taken by a survey organized by the researchers through collecting data from the sample group of representative participants in the population, which is followed by interviews with three randomly selected participants. Generally, this study reveals that most of the participants understand well about the concept of TPACK as well as the opportunities and its challenges of TPACK application in the classroom. The theoretical and pedagogical use of this research will be discussed further. Based on the purpose of the study, the following research questions are:

1. What are pre service teacher's perceptions about the concept of TPACK?

2. How do pre service teachers implement TPACK inside their classroom?

LITERATURE REVIEW

The advanced development of technology nowadays has brought the world to the better view to gain information and knowledge. This led to the development of the use of technology in the education ecosystem. Shulman (1986) stated that pedagogical content knowledge concentrates on the development of the understanding of how students learn the specific subject matter. While Mishra and Koehler (2006) add the technology aspect in which Shulman's idea of Pedagogical Content Knowledge (PCK), thus, Mishra and Koehler (2006) complete the gap of PCK adding the technology and stated that technology and cannot be separated from PCK.
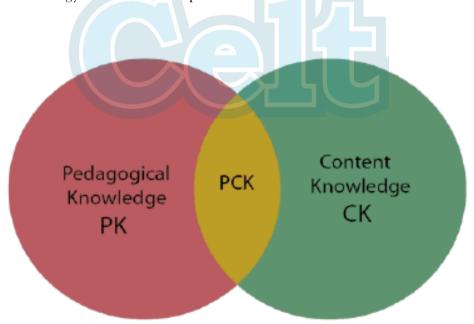

Figure 1:
Pedagogical and Content Knowledge (Shulman, 1986)

In 1986, Shulman established a model (see Figure 1) that suggests that effective educators combine content knowledge into their instruction through pedagogical expertise (Tallvid, Lundin, & Lindström, 2012). Shulman provides, the most useful ways to reflect such concepts, the strongest analogies, images, illustrations, descriptions and presentations, for the most frequently taught topics in his profession. Simply said, the model is representing and formulating the subject that make it comprehensible to others as a structure for teaching awareness offered by teachers (Shulman, 1986, p. 9).

In 2006, Mishra and Koehler introduced the technical skill aspect and assumed that different types of instructor expertise could be retrieved from the integration of technology, pedagogy and content. These associated origins of knowledge are the understanding of pedagogical material (PCK), knowledge of technical content (TCK), pedagogical knowledge of technology (TPK), and knowledge of digital educational content (TPA), along with technological know-how (TK), pedagogical knowledge (PK), and material knowledge (CK) (Koh, Chai, & Lee, 2015). Such seven forms of knowledge underpin the TPACK system. Those as mentioned above are the seven TPACK structures (Mishra & Koehler, 2006). The seven constructs of TPACK (Mishra & Koehler, 2006) are as displayed in Figure 2 consists of:

1.   CK: Knowledge of subject matter/content

2.   PK: Knowledge of instructional strategies and methods

3.   TK: Knowledge of using technology utensils

4.   PCK: Knowledge of applying relevant instructional strategies and techniques to explain the content of the subject

5.   TPK: Knowledge of applying technology to engage instructional strategies

6.   TCK: Knowledge of presenting subject content with technology.

7.   TPACK: Knowledge of facilitating the learning of specific subject matter to students by relevant pedagogy and technology.

There is still a lack of technological mastery to support the teaching and learning process. To fix the problem, Mishra & Koehler (2006) introduce the new section of PCK with Technological Knowledge (TK). Technological Knowledge (TK), which is the basics of technology that can be used to assist learning (Malik, Rohendy, & Widiaty, 2019). This statement in line with the

concept of Mishra and Koehler (2006) that is agreeing all three forms of proficiency (PCK) that are required in teaching, but they emphasize the importance of increasing the technological resources.
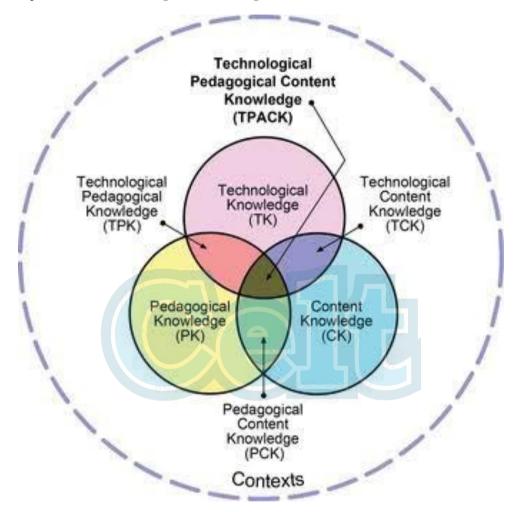

Figure 2:
The TPACK Framework (Mishra & Koehler, 2006)

Technological information is related to innovation and its use in learning (Tallvid et al., 2012). The TPACK system offers several resources for studying in the areas of teacher education, professional development for educators and the use of technology by teachers (Koehler & Mishra, 2009). TPACK will develop student learning, inspire educators, families, and make schools more fascinating and useful for learners, providing equal

opportunities for each learner, and leading to professional improvement for teachers (Malik, Rohendy, & Widiaty, 2019).

Some numbers of studies have been conducted to examine the creation of TPACK by design approach. A survey organized by Gill & Dalgarno (2017) find out how six Australian pre-service teachers' Technological Pedagogical and Content Skills (TPACK) can be strengthened from a sequence of six semi-structured discussions over a four-year teacher training course revealed that all participants had mastered their pedagogy of technology, but in each participant it is different. All participants had a full understanding of technology, and the experience of participants had the most significant impact on the development of TPACK. However, in another study conducted by Mahdum (2015) who concentrated on investigating TPACK mastery of English teacher in Pekanbaru, Indonesia, showed that TPACK understanding of English teachers in Pekanbaru is in 'good' category. It mentions that they have been able to integrate ICT, content and suitable technique in English language learning. Besides that, a study was done by Turgut (2017) which examines pre-service teachers' perceived development of TPACK skills reveal that the self-report survey's quantitative data analysis showed that senior-level PTs self-rated themselves have the highest TPACK's subskills. While the qualitative data showed domains-like technology (TPK, TCK, TK, and TPACK) are considered to be the most advanced in Senior Grade students, that were led by Sophomore Year and Junior Level. In the result, there is no significant characteristic between Seniors and Sophomores (Senior > Sophomore > Junior). For instance, research was done by Nazari et al. (2019) which focused on investigating TPACK perception between novice and experienced teachers for their professional development. The data of the study mostly showed a significant difference in their expected TPACK between beginner and experienced Iranian EFL teacher.

Many studies have been done in the scope of TPACK on the pre-service teacher. A survey conducted by Nazari, et al., (2019) evaluating the novice and experienced EFL teachers' TPACK for their professional development resulting in a significant difference in their expected TPACK between beginner and experienced Iranian EFL instructors. Novice EFL teachers are primarily more qualified in their knowledge of technology, knowledge of software information, knowledge of technology pedagogy and TPACK, but less specialized in their knowledge of pedagogy and material. Experienced EFL educators, on the other hand, had a greater understanding of pedagogy and pedagogical substance and were less qualified in their Technological

Knowledge (TK) and different information bodies relative to novice EFL teachers.

The same study is conducted by Fathi et al. (2019) who see from the perspective of EFL students about their teachers' TPACK stated that many EFL students considered their EFL teachers to be excellent in four components of TPACK, which includes Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK) and Pedagogical Content Knowledge (PCK). Still, teachers are perceived to be comparatively less qualified in the other components such as Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and TPACK. However, the lack of support from the school itself could choke teachers' TPACK understanding as stated by Hsu (2016) in his research about examining EFL teachers' technological pedagogical content knowledge and the adoption of mobile-assisted language learning. Furthermore, teachers' TPACK should be supported by the availability of technology in the school.

In investigating the teacher's perception of TPACK, many researchers use various methods in their papers. A research conducted by Szeto & Cheng (2017) used multiple sources, including semi-structured interviews, observation in the classroom, and relevant resources such as the subject curriculum and different subject lesson plans. A previous study was also done by Muoza et al., (2014) using TPACK survey and performance assessment. On the other hand, Gill & Dalgarno (2017) conducted a qualitative research of TPACK using a collective case study to gain insight into the design of TPACK during teacher training. Another study was done by Nazari, et al., (2019) that used the TPACK survey and follow-up interview to gain the data of their mixed-method study. In the same year, a research conducted by Fathi & Yousefifard (2019) used TPACK scale questionnaire to assess the Iranian EFL student's perspectives on the TPACK of their teachers. However, by considering the many previous studies where most of them used interview and TPACK questionnaire to collect the data, this mixed-method research paper used interviews and questionnaires to collect the data from the participants.

METHOD

A.   Participants and Research Setting

This study is aimed to investigate the pre-service teachers' understanding of TPACK and to examine how they apply TPACK in their classroom. To

achieve this purpose, the form of TPACK questionnaire was designed, and a survey of pre-service teacher's perception of TPACK was conducted to collect the data. This mixed-methods research's data was collected from 68 pre-service teachers enrolled in the English Education Department of UNS who are in the age range of 20-22 years old.

B.   Instruments

1.   TPACK questionnaire

TPACK instruments measures seven factors. They were TK, CK, PK, PCK, TCK, TPK, and TPACK. The TPACK-EFL survey included a total of 14 items: 2 TK items, 2 CK items, 2 PK items, 2 PACK items, 2 TCK items, 2 TPK items, and 2 TPACK items. However, this study used the five-point scale.

2.   Interview

The themes of the interview were on EFL pre-service teachers' TPACK understanding and how they implement TPACK in their classroom. For the appropriate time to conduct face-to-face interviews, three supposed examples of each interviewee were handled for their ease. This took 15–20 minutes for each talk. With the permission of the participants, the interviewee's answers were recorded using the phone recorder to prevent data loss.

FINDINGS AND DISCUSSION

A.   Pre-service Teacher's Perception about the Concept of TPACK

This study reveals the TPACK understanding of pre-service teachers and investigates how they apply TPACK in their classroom. Data is taken by a survey organized by the researchers through collecting data from questionnaire to the population, followed by interviews with three randomly selected participants. However, from 68 participants, the inquiry is only filled by 21 participants with a 20-22 years old age range.
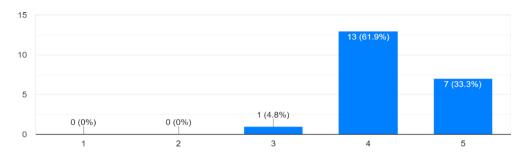
1.   Technological Knowledge (TK)

Looking at Chart 1, it is found that most of the participants think that there is a need to integrate technology in teaching and learning program.

Chart 1:

Pre-Service Teachers' Perception about Technological Knowledge

I think there is a need to integrate technology in teaching and learning process
21 responses

As many as 61.9% of participants agree that technology in educational purposes is essential, 33.3% of them strongly agrees, and only 4.8% participants are neutral about it. This data indicates that there is a need for technology to be implemented in the classroom, and no participants assumed that technology is not for the teaching and learning process.
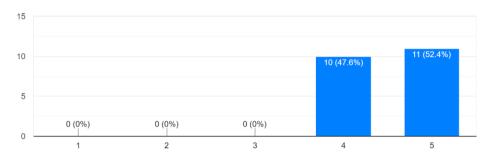
From another question in the questionnaire, 57.1% of participants are quite able to use the technological basic technological terms (e.g. operating system, wireless connection, virtual memory, etc.) appropriately. This implies that pre service teachers with experienced TPACK experience have been effective in their pre-service teacher education program which in turn gives them the necessary skills and able to know how technology is applied in their practical training (Öz, 2015). From the three participants I interviewed, mostly they said that there is a need to integrate technology during teaching and learning program because in this global era, the need of integrating technology is increasing continuously.

2.   Content Knowledge (CK)

Chart 2 showed that most of the EFL pre-service teachers are able to understand texts written in English. As many as 47.6% of them stated that they entirely comprehend about English text and 52.4% of the participants well-understood the text in English. Based on the chart given, none of the participants are having difficulties in understanding text written in English. Another question in the questionnaire stated that 47.6% of participants quite understand the speech of a native speaker. This leads us to the level of understanding English text of pre service teacher is quite good.

Chart 2:
Pre-Service Teachers' Perception about Content Knowledge

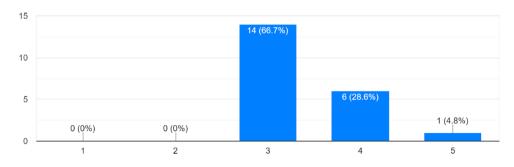I can understand texts written in English
21 responses

From the interviewee, most of them said they can understand the text in English well because they have a right level in English proficiency; including speaking skill, grammar proficiency, listening proficiency, reading ability, vocabulary proficiency, and pronunciation proficiency.

3.   Pedagogical Knowledge (PK)

In order to optimize the use of technology in teaching and learning process, there should be a well-designed learning experience for the students. However, Chart 3 shows that most of the participants still on the average level of designing a learning experience that is appropriate with the level of students 66.7%.

Chart 3:
Pre-Service Teachers' Perception about Pedagogical Knowledge

I can design a learning experience that is appropriate with the level of students
21 responses

There are 6 participants (28.6%) who assumed that they had developed a good learning experience and there is only 1 participant (4.8%) stated that the participant could able to create a well-designed learning experience. It can be said that all participants can develop a learning experience that is appropriate with the level of their students, even though most of the participants are in the average level of improving the learning experience. However, the way these strategies are implemented depends on such an influence (Baran, et al., 2019). It requires a greater focus on the quality and variety of implementation approaches of teacher education programs (Kay, 2006). When asked about what are their design of the learning experience that is appropriate for their students in internships application by the pre service teacher, having an ice-breaking game or putting humor in their classroom were two of the activities that could melt class atmosphere into an enjoyable one.
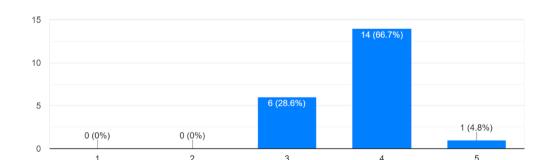
4.   Pedagogical and Content Knowledge (PCK)

From the data given above, the Chart 4 showed the ability of pre- service teacher evaluating their students' learning process. As many as 66.7% of participants stated that they could assess students' learning process, 28.6% of participants are assuming that they are quite able to assess students' learning process and 4.8% of participants believe they can evaluate students learning the process. This data shows that most of the pre-service teachers can assess students' learning process.

Chart 4:
Pre-Service Teachers' Perception about
Pedagogical and Content Knowledge

I can evaluate students' learning processes
21 responses

There are many ways to assess students' learning processes. Still, most of the participants stated that having a discussion after class with their students is

one of the best ways to conduct learning evaluation. Teachers will maintain their personal and professional progress, track their academic growth, understand the needs of their students and evaluate their own decisions in this course (Yalın Uçar in Ozdas, 2018).
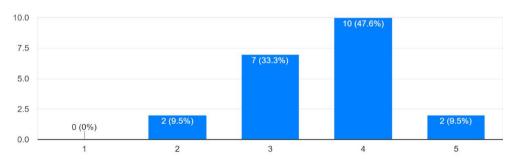
5.   Technological and Content Knowledge (TCK)

As we can see from Chart 5, the majority of participants is assuming that pre-service teachers can meet students' individual needs by using information technologies. As many as 47.6% of participants stated that they could use technologies to meet students' individual needs, 9.5% of the participants assumed that meeting students' individual needs is not a big problem, and 33.3% of the participants are neutral. However, there are 9.5% of participants that seemed they still have to improve their use of technologies to meet students' individual needs.

Most of the participants said that using audiovisual and slides media can provide a better understanding of the content to the students in order to meet students' individual needs by using information technologies. Some participants said that for the quiz, they usually use Schoology and Kahoot as their media.

Chart 5:
Pre-Service Teachers' Perception about
Technological and Content Knowledge

I can meet students' individual needs by using information technologies
21 responses

The result is in line with a study stated that throughout English education, ICT devices are seen by their significant contribution throughout organizing the learning process in a way that calls for many sensory organs, helps students fulfil their individual needs, lists them, encourages recall, saves time and integrates abstract concepts. In this sense, they are regarded as the

main addition to teaching and learning environments (Gunuç & Babacan, 2019).
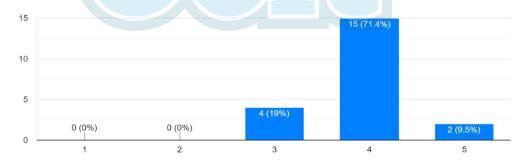
6.   Technological and Pedagogical Knowledge (TPK)

According to the collected data, most of the pre-service teachers can design learning materials by using technology that supports students' language learning (71.4%), where 2 participants stated that it is not a big deal to develop learning materials by using technology (9.5%) and only 19% of the participants informs neutral. Thus, it means that almost all of the participants can design learning material by using technology when they are in the internship program.

From another question of the questionnaire, most of the participants (66,7%) stated that they could manage the learning environment while using technology in the classroom.

Chart 6:
Pre-Service Teachers' Perception about Technological and Pedagogical Knowledge

I can design learning materials by using technology that supports students' language learning.
21 responses

The result is in line with Hiebert et al. in Cavanagh (2019) who emphasized that it is vital for pre-service teachers to specify fundamental learning objectives when planning their courses, careful planning lays the foundations on which to construct all other skills.

7.   Technological, Pedagogical, and Content Knowledge (TPACK)

The data in Chart 7 showed that 83.8% of pre-service teachers are quite well in using collaboration tools such as Schoology, Edmodo, Kahoot and many other collaboration tools according to their objectives in teaching.

I can use collaboration tools (Schoology, Edmodo, Kahoot!, etc.) in accordance with my objectives in teaching
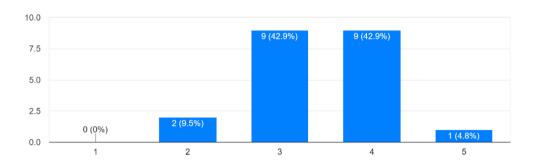
21 responses

Chart 7:
Pre-Service Teachers' Perception about Technological, Pedagogical, and Content Knowledge

There are 9.5% of the participants who stated that they still need improvement to use these kinds of collaboration tools and there is only 4.8% (1 participant) that assumed that he uses the collaboration tools with no big deal. The result of this chart reveals that although most of the participants can use collaborative tools in their teaching, there is still a need for improvement for using these tools in classroom teaching.

Using technology in the classroom has many benefits. This statement is in line with a study that shows a higher exposure to authentic language, access to a broad range of information sources and language variations, opportunities for interaction and communication and a more intensive learner involvement are the main benefits of using technology for language learning (Carrió Pastor in Carrió-Pastora & Hanna Skorczynskab, 2014).

B.   The Implementation of TPACK of Pre-Service Teacher Inside Their Classroom

To Collect qualitative data, an interview of some random participants was conducted. First of all, participants were asked about what is the definition of TPACK according to their understanding. Interestingly, all of the participants stated different opinions, but TPACK is still acceptable.

> As far as I know, TPACK is just like the concept of learning where teachers must master learning material and master how they teach the material for the students with the support of technology. (Hakim, December 5, 2019, interview)

> In my point of view, TPACK is a framework in education where it combines the aspect of technology, pedagogy, and the understanding of students about the materials. (Arwanto, December 6, 2019, interview)

> TPACK is integrating learning materials with the help of advanced technology. (Wibawani, December 12, 2019, interview)

From the three participants, we could see that there is a lack of understanding of the concept of TPACK. TPACK, as stated by Mishra and Koehler (2006), is a framework in designing new learning models with the evaluation of three main aspects, namely technology, pedagogy and content/material knowledge.

The participants were also asked about their perception of the integration of technology in the classroom in this globalization era. Most of the participants stated that there is a need to integrate technology in the school to support students' learning process. For example, AAH noted that technology is essential in the learning process because of the globalization era.

> It's crucial because, in this globalization era, most of the segment of life is now integrated into the technology itself especially in education considering many platforms of education is now raising that could be implemented in the classroom. (Hakim, December 5, 2019, interview)

Another participant, HA, has the same opinion about the integration of technology in students' learning. H said that technology is now improving widely, and there is a need to adapt to the era.

> I think it's important because technology nowadays is rapidly improved and it should be implemented in the classroom (Arwanto, December 6, 2019, interview).

However, DAW, has a different view about using technology in the classroom. She stated that it is not a must for teachers to integrate technology

in the teaching and learning process because it is sometimes could decrease teachers' interaction with students.

> No, I think it does not always need to integrate technology in teaching because I prefer to have interaction with my students. The educational platform, such as Schoology and Kahoot! are not suitable in my class because they decrease the interaction with students. Maybe, for some reason, it helps but only for innovate the teaching and learning process (Wibawani, December 12, 2019, interview).

Based on their answers, most of the participants (75%) agreed on the importance of technology in learning. This finding is in line with a study undertaken by Chuang et al. (2018) who showed that the students improved in their Technological Knowledge if their teachers are using technology in their learning process. However, based on one participant, the educational platform based on technology still have the possibility to decrease classroom interaction.

The participants were also asked about how they meet students' individual needs using information technologies. AAH stated that he used Schoology for teaching process

> Most of the students are often playing with their smartphones, so I got an idea to still allowing students to use their phone in class but in purpose to use it for learning using Schoology. (Hakim, December 5, 2019, interview)

HA assumed that he could use WhatsApp to collect their students' work, and when using technology, students could reduce the use of paper.

> One of the examples is when I ask them to make an article for each of the students, and I ask them to send the result in soft file to my email or my WhatsApp. Furthermore, they can reduce the use of paper and implementing recent technology in education (Arwanto, December 6, 2019, interview).

DAW, however, has her own method in fulfilling students' individual needs. Because she seldom used technology, she prefers to have interaction with the students. She assumed that technology is just a tool.

> I have difficulty in monitoring students by using technology, so I tend to have direct interaction with my students. In my opinion, technology is just a media (Wibawani, December 12, 2019, interview).

According to the data of the interview, most of the participants (75%) use technology to support students' individual needs. On the other hand, DAW assumed that she just needs an interactive classroom activity to fulfil students' individual needs. How they implement technology in their classroom was also asked in this interview session. It finds out that all participants have their way to apply technology in the educational section, especially in the school. HA stated that sometimes materials in the book are still less complete, to cope with the gap of the materials, he provides the materials from the internet, then he put it on the PowerPoint slides.

> If there are materials that less complete in the students' book, later, I will add the materials that are still missing from the book and display it through my slides (Arwanto, December 6, 2019, interview).

In line with HA, AAH answered that he usually used PowerPoint and movies as his teaching media in the classroom. He also used Schoology but only for slightly using such as giving a quiz to the students

> I usually use Schoology, but only for giving the quiz, giving the material, or even collect students' assignments. And also, I use PowerPoint in most of my teaching and learning process because, in my opinion, it helps the teacher to present the material. Sometimes, I use movies for teaching (Hakim, December 5, 2019, interview).

However, DAW views technology acts as media for teaching and not for a must in the teaching and learning process.

> Technology acts as media for teaching because each students' needs are different. There are fast learners and slow learners, for the slow learner I prefer to use personal approach (Wibawani, December 12, 2019, interview.)

Based on the participants' answers, technological platforms such as video or even Schoology could be the media in implementing technology in the classroom because it gives a new atmosphere to the students.

> I think that teaching without technology feels like something is missing in the teaching and learning process, and it makes the material that I give to them may not be as effective as I use technology. So, without technology, I think the teaching and learning process will be not effective (Hakim, December 5, 2019, interview).

> In my observation, the teaching and learning program in the school I did internship was conducted with the old way, so it's just one-way communication, and the teacher only explain the material using the book for presenting the materials, and it makes students bored without any discussion for the whole lesson time. To cope with the problem, I ask the students to have a discussion with their peers based on the technology (slides or video) (Arwanto, December 6, 2019, interview).

However, technology still needs to be limited and even possible to teach English without technology to create an active classroom atmosphere as stated by DAW with her comparison between Indonesian and Filipinos (Philippines' people) in the classroom.

> I think that learning English is still possible even with no help of technology, not the same as engineering which needs technology in their learning. In the context of language, technology acts as ease in delivering materials, and it's not >50% of the other teaching design. Based on my experience when I was in the Philippines for my internship program, the students are lack of technology for education. On the other hand, the teachers in the Philippines are more creative to make an interactive classroom. In Indonesia, technology education is more advanced than the Philippines, but the Philippines' teachers are more creative in creating an interactive classroom (Wibawani, December 12, 2019, interview).

In one of the questions given, in order not to depend too much on technology, he limits the use of technology by 80%-20%.

> In most of the meeting, I use 80% of the meeting to do traditional face-to-face with my students and 20% of the meeting I use it for the virtual classroom because I must explain the materials, what should they do, and the instruction indirectly face-to-face with my

> students. On the other hand, I use Schoology for the test, and I have to accompany them to monitor their progress and minimize the act of cheating (Hakim, December 5, 2019, interview).

However, there are some obstacles stated by all of the participants in implementing technology in education.

> Fortunately, in the school where I did my internship program, the school is allowing their students to bring their phone but only for teaching and learning purpose only. If the school is not allowing for students to bring their phones to school, I will use PowerPoint slides, or movies (Hakim, December 5, 2019, interview).

> When I give my students the freedom to use their phones in the classroom, they are often abusing the phone to open another application or use their phone, not for the learning process. Fortunately, my internship school is allowing their students to bring their phone for learning as long as there is control from the teachers (Arwanto, December 6, 2019, interview).

> In school, the biggest problem for technology is the internet. However, for the experience, I never use technology-based learning because the teacher should be the provider of the materials, not the students (Wibawani, December 12, 2019, interview).

According to all of the results of the interview, we could see how pre-service teachers implement technology in the classroom and what was the obstacle to implementing technology in the classroom. Findings revealed that all the participants implement technology in their ways. One person uses Schoology and Kahoot for the quiz, giving their students the materials, or even conducting a test.

The other one uses WhatsApp to collect students' work. Technology is useful. However, DAW stated that technology is not a must in the learning process because it can decrease classroom interaction. There is still lacks study which examines about the disadvantages of the use of technology in the classroom to support DAW's argument, and it might be a gap that can be fulfilled by other researchers to complete technological difference in the school.

CONCLUSION

In this study, the data have shown the result of the case of pre-service English language teachers' (PTs) perception about TPACK and how they implement the concept of TPACK in their classroom based on their experiences on their internship program. While early studies primarily focused on what in-service teachers have done, our study focused on the development of PTs' 1) perception of TPACK and 2) implementation of TPACK in their internship program, which is still relatively still lack research done in this segment. While early research focuses on TPACK implementation by in-service teachers, this study focuses on the belief and practice of TPACK by pre-service teachers. This topic is still relatively rare in the literature. Thus, this study shed light on what might be the tension and approach these novices teachers used in their classroom.

However, while they still found a way to implement technology in their teaching, a gap has risen during the findings, that is, technology could decrease classroom interaction and activeness. Additionally, the results also showed how the pre service teachers' perceptions about the definition of TPACK and found out the way they implemented technology in their internship program.

This result suggests the need, not only to deepen the understanding of the concept of TPACK but also the practice of pre service teachers' use of technology in the campus to make the pre service teachers master the integration of technology in their internship program. There is also a need to research the weakness of using technology in classroom teaching.

Due to various teaching situations and learners' needs, a more detailed study of PT experiences and how their teaching practices and strategies are needed to be done. It will give us a better view of the kinds of challenges pre service teachers in their application of technology in the classroom and lecturers in charge can immediately develop. It is also essential to study in detail how curriculum redesign should be carried out at college and how at the end of the day colleges will educate students but also making courses much more interesting by using the latest technology.

REFERENCES

Baran, E., Canbazoglu, B. S., Albayrak, A., & Tondeur, J. (2019). Investigating the impact of teacher education strategies on pre service teachers' TPACK. British Journal of Educational Technology, 50(1), 357-370.

Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016). Developing a technological pedagogical content knowledge (TPACK) assessment for pre service teachers learning to teach English as a foreign language. *Computer Assisted Language Learning, 29*(4), 749–764. doi:10.1080/09588221.2015.1047456

Carrió-Pastor, M. L., & Skorczynska, H. (2015). Collaborative learning and communication technologies in teaching business English. Procedia-Social and Behavioral Sciences, 178, 32-37.

Cavanagh, M., Barr, J., Moloney, R., Lane, R., Hay, I., & Chu, H. E. (2019). Pre-service teachers' impact on student learning: Planning, teaching, and assessing during professional practice. Australian Journal of Teacher Education (Online), 44(2), 66.

Drajati, N. A., Tan, L., Haryati, S., Rochsantiningsih, D., & Zainnuri, H. (2018). *Investigating English language teachers in developing TPACK and multimodal literacy. Indonesian Journal of Applied Linguistics, 7*(3), 575–582. doi:10.17509/ijal.v7i3.9806

Fathi, J., & Yousefifard, S. (2019). Assessing Language Teachers' Technological Pedagogical Content Knowledge (TPACK): EFL Students' Perspectives. Research in English Language Pedagogy, 7(2), 255-282.

Gunuç, S., & Babacan, N. (2018). Technology integration in English language teaching and learning. Positioning English for Specific Purposes in an English Language Teaching Context, 1.

Kay, R. (2006). Evaluating strategies used to incorporate technology into pre-service education: a review of the literature. Journal of Research on Technology in Education, 38, 383–408.

Öz, H. (2015). Assessing Pre-Service English as a Foreign Language Teachers' Technological Pedagogical Content Knowledge. International Education Studies, 8(5), 119-130.

Ozdas, F. (2018). Evaluation of Pre-Service Teachers' Perceptions for Teaching Practice Course. Educational Policy Analysis and Strategic Research, 13(2), 87-103

Mahdum, M. (2015). Technological pedagogical and content knowledge (TPACK) of English teachers in Pekanbaru, Riau, Indonesia. *Mediterranean Journal of Social Sciences, 6*(5), 168.

Malik, S., Rohendi, D., & Widiaty, I. (2019, February). Technological Pedagogical Content Knowledge (TPACK) with Information and Communication Technology (ICT) integration: A literature review. In *5th UPI International Conference on Technical and Vocational Education and Training*. Indonesia (ACTVET 2018), Atlantis Press.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record, 108*(6), 1017-1054.

Nazari, N., Nafissi, Z., Estaji, M., & Marandi, S. S. (2019). Evaluating Novice and Experienced EFL Teachers' Perceived TPACK for their Professional Development. *Cogent Education*, 1632010.

Ekrem, S., & Recep, Ç. (2014). Examining pre service EFL Teachers' TPACK Competencies in Turkey. Journal of Educators Online, 11(2).

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational researcher, 15(2), 4-14.

Szeto, E., Cheng, A. Y. N., & Hong, J. C. (2016). Learning with social media: How do pre service teachers integrate YouTube and social media in teaching?. The Asia-Pacific Education Researcher, 25(1), 35-44.

Szeto, E., & Cheng, A. Y. N. (2017). Pedagogies across subjects: What are pre service teachers' TPACK patterns of integrating technology in practice?. *Journal of Educational Computing Research*, *55*(3), 346-373.

Tallvid, M., Lundin, J., & Lindström, B. (2012, March). Using TPACK for Analysing Teachers' Task Design–Understanding Change in a 1: 1-

Laptop Setting. In Society for Information Technology & Teacher Education International Conference (pp. 4773-4780). Association for the Advancement of Computing in Education (AACE).

Turgut, Y. (2017). Tracing pre service English language teachers' perceived TPACK in sophomore, junior, and senior levels. *Cogent Education, 4*(1), 1368612.