English Language Education Student-Teachers' Perception on TPACK

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ABSTRACT

Technological advances in the 21st century have had a major influence on the development of education today. The integration of technology into the classroom affects the learning process as well as the way teachers implement and develop learning activities in the classroom. This study aims to find out about the perception of student-teachers towards Technological Pedagogical Content Knowledge (TPACK). This study uses a quantitative design to determine student-teacher perceptions of the TPACK framework. Survey was conducted to view and collect data using questionnaires, the participants were given the questionnaire, which contains five Likert scale scales to gain the data and TPACK of the student teachers. The subjects of this research are 141 participants of 2017-years students-teachers of ELE in Ganesha University of Education, Singaraja, Bali. The result showed that the student-teachers have a positive perception toward the implementation of TPACK in the teaching process.

Keywords: *EFL, Perception, Student-teachers, TPACK Framework*

INTRODUCTION

In this 21st century, the teaching-learning process cannot be separated from the use of technology. Technology is something that is attached to society, and it is also included in education. In addition, Batane and Ngwako (2017) explained that technology is considered a vital element, so teachers must apply technology in education in this twenty-first century. The rapid development of technology can be a challenge for schools, especially teachers and related agencies, to adapt to its significant changes (Kontkanen et al., 2016). Today, student teachers are equipped with skills and knowledge in their training programs to apply technology in teaching. Some possibilities enable teachers to integrate technology in teaching designs to improve student learning (Batane & Ngwako, 2017). Corkett and Benevides (2015) said the use of technology today allows students and teachers to create new opportunities in the teaching-learning process. Besides using technology, the perceptions of a prospective teacher or

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teacher must also be considered for their development in training so the teaching process can be done effectively.

The teachers' perception plays an important role in the teaching and learning process. As Qiong (2017) defines perception as a way of thinking about things and ideas, how to pay attention to something according to one's senses, and or the ability to understand or pay attention to something. Teacher has an important role in the teaching and learning process' effectiveness, so the teachers' practice and perception are essential. For example, the use of traditional lecturing can cause unfacilitated students in their learning environment when the teachers lack of understanding in students' learning style and needs (Agustrianita et al., 2019). Also, the teachers' perception towards assessment will affect the assessment type that the teacher will use. Aside from the perceptions, in applying technology in the teaching process, a good understanding is needed by teachers and prospective teachers. So, they can convey teaching material properly and according to the needs of students. Technological pedagogical content pedagogical knowledge (TPACK) is a concept as developing a form of knowledge needed by a teaching teacher designed by Koehler and Mishra (2006) that contains technology integration in pedagogical content knowledge and it is assumed to play an important role in the teaching process using technology. Wang et al. (2018) said TPACK is a conceptual framework used to understand teacher knowledge in integrating technology in education. The concept of TPACK is the evolution of Shulman's theory of PCK (pedagogical content knowledge). The theory of PCK focuses on the teachers' need to incorporate technology within concepts and pedagogical constructs.

TPACK is an important concept in teaching in the 21st century. A teachers' belief in teaching and practicing in the classroom is necessary, where the teachers are sure of their principles in teaching knowledge to students (Taopan et al., 2019). According to Rahmadi (2019), teachers must know modern and traditional techniques to improve learning quality in the 21st century. Taopan et al. (2019) interviewed and conducted research on the teacher who believes in the TPACK framework and had 25 years of experience in teaching English. Besides, the teacher was familiar with the use of technology in teaching classes at senior high schools. The teacher is one of the teachers taught at a senior high school in Indonesia. Their study found that teachers who believe in the TPACK framework will be successful if there is a balance between the three domains; technological, content, and pedagogical. The teacher also believes that integrating technology in education also makes the teaching and learning process more manageable.

Teachers must believe in the TPACK framework when implementing it in learning. Teachers who adopted the principles as the basis of thoughts and attitudes in the classroom cannot be separated from their beliefs. Taopan et al. (2019) conducted a study on an English teacher on how the teacher used her beliefs about the TPACK framework in teaching English. This study indicates that the TPACK framework will be successful if the aspects of technology, pedagogy, and content knowledge are at the same level. Besides, the researchers found that teachers also believe that technology integration should facilitate and make it easier for students to learn English. The TPACK framework in the teaching process seems to be closely related to teachers' perceptions in teaching English. Prasetya et al. (2019) conducted research that aims to determine English teachers' perceptions using the TPACK framework in the teaching process at senior high schools. In this study, the researchers found that most teachers had

positive perceptions of using the TPACK framework in teaching English in high schools.

Besides, student-teacher perceptions of the TPACK framework are also an important aspect of teaching. Teachers get their knowledge when they attend teacher education programs to become professional teachers. Setyosari et al. (2020) conducted a study to see students' profiles and perceptions using the TPACK framework while carrying out teacher education programs. This study shows that the prospective teachers occupy the lowest position in skills to use technology. Moreover, when combined with pedagogic skills (Technology Knowledge-Pedagogical Knowledge or Technological Pedagogical Knowledge), it appears that these two components occupy the highest position. Other results show that the combination of Pedagogical Knowledge-Content Knowledge or Pedagogical Content Knowledge increases Content Knowledge skills.

Current issues are focused on student teachers' perceptions toward technological pedagogical content in English instructions in (English Language Education) Ganesha University of Education. After all, currently, technology integration is needed in teaching. In addition to facilitating learning in the classroom, learning outside the school is possible. This possibility can make students learn more because they do not have to be limited in learning time. Students can study anytime and anywhere, and students can find additional information they need themselves apart from the teachers' material. Furthermore, the integration of technology in the teaching course also has to be with the content of knowledge that students and teachers must also teach well by using their technology. Therefore, it requires teacher awareness about TPACK.Prasetya et al.(2019) researched teachers' perception of using technological pedagogical content knowledge to teach English. This research investigates the Buleleng senior high school teacher perceptions of the TPACK (Technological Pedagogical Content Knowledge) framework in teaching and learning activities. The method used in this research is an explanatory sequential mixed. In collecting the data, this method used two instruments such as questionnaire and an interview guide. This investigation shows that most senior high school teachers in Buleleng had a positive teaching framework.

The other study conducted by Dinc (2019) entitled prospective teachers' perceptions of technology integration barriers in education. This study aims to collect the pre-service teachers' ideas about possible obstacles to technology integration in education. The method used in this data is descriptive analysis in the qualitative study. This research shows that prospective teachers have several critical perceptions towards the technology integration, such as: how to use the technology effectively, an addition of technology in the course curriculum, increase the engagement, visualize the content of the course, work with administrators to integrate technology and be able to teach with technology that did not be taught before. Septiyanti et al.(2020) studied Technological Pedagogical and Content Knowledge (TPACK) Perception of English Education Students. This study investigates the perception of Lampung University English Education Students, how students obtain TPACK in the learning activity, and the lecturers' role in securing TPACK in the learning activity. In collecting the data, this study used a mixed-method questionnaire and interview. This study showed that the score of all domains was 722, which means the students' TPACK perceptions were generally good.

Taopan et al. (2019) conducted a study about Discovering the teacher's beliefs in the TPACK framework for teaching English in high school. This study aims to find out the story of English teachers using the TPACK framework for teaching English. In gathering the data, this study used a semi-structured interview, observations, and document analysis. The result of the study shows that the English teacher has three beliefs in the TPACK framework, such as; (a) to make the use of TPACK framework success, the technology, pedagogy, and the content knowledge must be well balanced, (b) technology integration should facilitate the students to learn English easier than before, (c) negotiation is one of the most important things to do inside the classroom.Setyosari et al., (2020) studied Investigating Students' Profiles and Perceptions of Using TPACK Framework of Primary Teacher Education Program. The study aims to investigate the students' profile and perception of using the TPACK framework. In collecting the data, this study used survey research. This study showed that when combined with the pedagogical skill (TK-PK or TPK), the participants' technical skill was in the lowest position, and the two components become the highest component. When there is a combination between PK-CK or PCK, the same thing will happen; the CK skill will become the higher component.

The previous studies investigated the teachers' perception of using the TPACK framework in the learning activity. The researchers are focused on researching TPACK areas where they looked at teacher perspectives to understand TPACK itself. In addition, the previous research was conducted to see teachers' beliefs about applying the TPACK framework in their teaching process, the obstacles that they might encounter in its application, and how teachers in the teacher education program build student-teacher perceptions of the TPACK framework. Based on the research above, this time, the researcher conduct study that focuses on how student-teacher perceptions of English Language Education toward TPACK. Student teachers of ELE in Ganesha University of Education have already used technology in their daily learning-teaching process. The use of technology is very often used in the classroom to help the teaching and learning process. With technology supporting the teaching and learning process, it is possible to teach online and in bland. Therefore, skills are needed for technology integration and content suitability for teaching, and good pedagogical skills to run classes effectively.

METHOD

The proposed research is using mix method, The Explanatory Sequential Design. According to Cresswell (2012), this design's overall purpose is to help the qualitative data describe in detail the initial quantitative results. Data collection occurs in two distinct phases, with rigorous quantitative sampling in the first phase and particular sampling in the second phase, namely the qualitative phase. The main idea is that direct qualitative data collection forms quantitative results. The quantitative and qualitative databases are analyzed separately in this approach. The quantitative results were used to plan qualitative follow-up. To investigate the participants' perceptions on Technological Pedagogical Content Knowledge in English Instruction, descriptive statistics (ideal mean score) were used to collect and present questionnaire data about the student teachers' attitudes toward TPACK. Qualitative descriptive was used to find out the deep information about how student-teachers' perception by conducting interview.

This study used a quantitative research design to analyze the data. Survey was conducted to collect the data from the participants through questionnaire and interview. 141 student-teachers of ELE of Ganesha university of Education were used as the sample of this study. Descriptive statistics (ideal mean score) were used to process and present questionnaire data about the student teachers' perceptions toward TPACK. The descriptive statistics was used to provide an overview of the data obtained using a questionnaire. The scoring criteria' determination will use the ideal mean (Mi) and the ideal standard deviation (Sdi) as a comparison to determine the final score. Koyan's formulas were used to determine the qualification level. The data result showed that the highest means score indicates very positively, and the lowest mean score indicates very negative. The follow-up interview was conducted by the use of purposive random sampling to determine the participants.

Table 1. Koyan's Formulas

No	Criteria	Categorization	Qualification
1	$Mi+1.5\ SDi \leq M \leq Mi+3.0\ SDi$	Very High	Very Positive
2	$Mi+0.5\ SDi \leq M < Mi+1.5\ SDi$	High	Positive
3	$Mi-0.5\ SDi \leq M < Mi+0.5\ SDi$	Average	Neutral
4	$Mi-1.5\ SDi \leq M < Mi-0.5\ SDi$	Low	Negative
5	$Mi-3.0\ SDi \leq M < Mi-1.5\ SDi$	Very Low	Very Negative

FINDINGS & DISCUSSIONS

The data shown are the result of the questionnaire, interview, and the lesson plan from the respondents, which were categorized to get the information to answer the research questions. The researcher has taken survey data using questionnaires that have been answered by student-teacher. The data taken were processed using SPSS 17.0 to determine the mean score and standard deviation of the student-teachers of the English education department toward Technological Pedagogical Content Knowledge.

The data obtained is displayed in a table to see the respondents' responses to each statement from the questionnaire. In addition, more specific information is described to see how student-teacher perceptions of the various dimensions covered in the TPACK Framework. The description of the results of each respondent's answers can be seen as follows:

Table 2. Finding

	N	Minimum	Maximum	Mean	Std. Deviation
	141	25	125	92.88	12.914

The table above is the results obtained through questionnaires that have been distributed and the data obtained have been processed using the SPSS application. The results from the data table above are then used to see and determine the perceptions that student-teachers have of Technological pedagogical content knowledge in its use to teach English.

The formula used to check student-teacher perceptions is as follows.

Mi = ½ (ideal Max. Score + ideal Min. Score)
Mi = ½ (5.00+1.00)
Mi = 3.00
SDi = 1/6 (ideal Max. Score - ideal Min. Score)

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SDi   =1/6 (5.00+1.00)
SDi   =0.667

Descriptive analysis explained and understood the student-teachers' perceptions of English language education toward the Technological Pedagogical Content Knowledge. The total sample used as respondents was 141 out of a total population of 218 English language students in semester 7 (seven) who had completed PPL in 2020. By using a questionnaire as a tool to collect student-teacher data, researchers obtained the mean score and standard deviation with the mean value. 92.88 (3.715) and standard deviation 12.91 (0.516) by processing the data using SSS v.17.0 In the rough table, the formula above shows the category grouping to determine the perception of student-teachers towards TPACK. The value of the interval between $4.0005 \leq M \leq 5.001$ indicated that the student-teachers' perception of TPACK was very positive. An interval value between $3.3335 \leq M \leq 4.0005$ indicates a positive. Student-teacher neutral perceptions of TPACK were aimed at the interval between $2.6665 \leq M \leq 3.3335$, negative perceptions at the gap $1.9995 \leq M \leq 2.6665$, and very negative perceptions shown at the score $0.999 \leq M \leq 1.9995$.

The mean score of the questionnaire is 92.88 (3.715), and it lies in the interval $3.3335 \leq M \leq 4.0005$. Thus, it indicated that student-teachers of English language education have positive perceptions toward the TPACK in English instruction. The answers in the questionnaire also show that most of the student teachers chose "agree" responses. In addition, the student-teachers' responses on each item about the TPACK framework with 25 statements contained within the questionnaire. A total of 46, 94% or 66 people from 141 students responded that they agreed with the statements on the questionnaire. A total of 14.35% or 21 people responded strongly to agree, 31.48% or 43 people gave a neutral response, and 5.19% or 8 people gave a disagreeing response and 2.03% or 3 of them were responded strongly to disagree. With the response shown in the table, it can be said that the student-teachers have a huge number of agreeable responses about the statements listed on the questionnaire given by the researcher. Very small number of respondents strongly disagree with the statements contained in the questionnaire

The questionnaire result was supported by the interview that the researcher conducted to get profound information of the perception of student-teachers toward TPACK and its application in the teaching-learning process. The questions asked are related to the topic of the study, which can be seen in the appendix 1. The results of the interviews show that many of the interviewees answered as follows:

A1: "In the learning process, the use of technology makes it very easy to teach students. Especially in a pandemic like now where the use of technology and applications to teach students.")

A2: "The teaching process using technology in teaching English is certainly easy, but there are many things that can affect the teaching and learning process. For example, the internet connection and technical problems that may occur during the learning process interfere with teaching activities in the classroom)

A3: Teaching using applications that already available for teaching are WA (WhatsApp) and other applications or using the web provided by

schools can make it easier to teach, but on the other hand, the application of teaching techniques to help students develop themselves feels less during this pandemic. It is difficult to monitor all students without interacting directly with them. "

A4: The difficulty that is found may still be in determining the appropriate application to teach the teaching material to students so that students fully understand the material being taught. In addition, to teach students using the ZOOM application requires a good internet connection.

The results obtained from the description above show that student-teachers positively perceive using technology to teach English in teaching students in the classroom. Moreover, the interviews were conducted to strengthen the questionnaire results about the ease and benefits of implementing technology for teaching. It shows some of the things that became their problems when implementing the use of technology in the classroom. As well as technical problems that may occur in the learning process and several other problems such as the strength of the internet network and the operational costs needed to carry out the learning process sometimes become obstacles faced in the process.

In this study, the results found on the questionnaire showed positive perceptions of TPACK. Student-teachers have good perceptions to the 7 dimensions of TPACK which are *Technological Knowledge* TK namely teachers' knowledge in using and applying technology, *Content Knowledge* (CK) which covers the teachers' knowledge of the subject matter used in the classroom, *Pedagogical knowledge* (PK)that covers the teachers' skill in teaching the students, *pedagogical content knowledge* (PCK) appropriate pedagogy, can be applied in the learning process with specific content, *technological content knowledge* (TCK) namely the understanding of teachers applying technology following the learning process' content *technological content knowledge*, (TPK) that about teachers' understanding of technology pedagogy and pedagogical strategies under scientific and developmental disciplines., and *Technological pedagogical content knowledge* (TPACK) that how teachers can apply their understanding of the material content and delivering it to student with their pedagogical skill with the appropriate technology that can support the learning environment.

A survey was conducted to determine how teachers perceive TPACK, which is also inseparable from its dimensions. The table 1 shows that teacher perceptions taken from 141 student-teachers gave positive responses with the mean score of the questionnaire is 92.88 (3.715), and it lies in the interval $3.3335 \leq M \leq 4.0005$. Thus, it is indicated that student-teachers of English language education have positive perceptions toward TPACK in English instruction. Based on these results, it can be said that student-teachers should have a positive perception of the implementation of technology into teaching English. The strong and weaknesses perceptions of TPACK affect the teachers to conduct the classroom environment (Valtonen et al., 2020). To follow up, Abbitt, (2011) find out that the various instruments and methods support the TPACK framework as a valid representation of the knowledge base that allows meaningful use of technology in teaching. Moreover, Perception is the process of gaining awareness and receiving information which then influences a person to respond to the information and develop ideas for doing something (Qiong, 2017). Thus, student-teachers who have a good perception of TPACK will also positively impact the class.

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Furthermore, the research data also indicated that student-teachers could teach English in the classroom with the help of technology which can be seen from the results of the interviews. The data obtained from the interview also shows some of the challenges faced by the student-teachers when carrying out the teaching process, such as some technical problems and internet connection. The interview results show that in its application, the use of technology used in the teaching process has a good impact on them and students because they can carry out the learning process with a more flexible time. In addition, according to research conducted by Taopan (2020) which states about TPACK which has benefits such as; Give motivation to both teacher and students; The use of a pleasant and flexible classroom; and Having various opportunities to develop multimodal products in the learning process is expected to provide tangible results for students. It also has some challenges such as the lack of capability to use IT, the technical problem and connection, and the development and creating the meaningful task that can improve students' achievement.

The explanations above show how the student-teachers perceive TPACK and how it can be really important to perceive TPACK positively. In this case, the researcher finds out this study shows similar results to previous research conducted by Prasetya et al., (2019) which also shows positive results regarding the perception of pre-service teachers who teach English. The study results indicate that respondents have a good perception of the implementation of TPACK in English instruction which has a good impact on conveying information from teachers to students in the classroom by applying the TPACK model. The help of technology in teaching English to students has a positive influence on students' continuity and learning environment. The use of technology has a positive impact on the continuity of the learning process in the classroom, following Raygan and Moradkhani (2020) statement, which states that teachers who have a positive attitude towards technological advances can improve teaching abilities and quality in conducting the lesson in the classroom.

To sum up, in the application of TPACK in learning activities, student-teachers can develop the learning process to take place even with the limitations of holding face-to-face meetings in the classroom. The benefits provided by imposing TPACK in the teaching process offer more opportunities for student-teachers to carry out the learning process more effectively and adapt to learning conditions. Nevertheless, in addition to student-teacher perceptions, the ability of student teachers to produce English classes that can combine teaching skills and the ability to select and use appropriate technology is very important. As supported by Taopan et al., (2020) previous research showed that to use the TPACK framework success, the technology, pedagogy, and content knowledge must be well balanced. In addition, technology integration should facilitate the students to learn English easier.

CONCLUSION

This study found that the tendency of English student-teachers to include teaching skills and teaching materials combined using technology was relatively high, which was in line with perception theory and several previous studies. The results of this study indicate a positive perception of the application of the TPACK framework in learning activities. In addition, in terms of percentage, student-teachers who have practiced teaching students based on skills using technology that support the delivery of English-language materials in teaching students

showed high scores on the distributed questionnaires. Empirically, the use of teaching skills that combine the ability to use technology in teaching English has a positive impact on the teaching-learning process in the classroom in the teaching practice of student-teachers. The results obtained in the application of TPACK in the school look pretty good, with positive reactions from students who participate in the learning process described by student-teachers through interviews conducted by researchers. Based on this research, there are several implications, such as the English teachers can use this research as motivation and self-reflection about self-development in carrying out the teaching and learning process. Besides that, the related institutions can also illustrate how to improve student-teachers' ability to integrate TPACK in the learning process. The result of this study can be supporting evidence to be considered in implementing TPACK in the course program, which can improve the knowledge and awareness of student-teacher in later they can conduct the lesson in more confident and with good understanding applying their knowledge in the world of education.

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