

Students' Perception Toward Teachers' Implementation of Technological Pedagogical and Content Knowledge (TPACK) in EFL Classroom at Madrasah Aliyah

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ABSTRACT

Technology and education are two things that influence each other. Technology in education is not only about the tools, applications, and software but also about how the teachers integrate the technology to present the learning model and learning content in learning activities. Therefore, this research aimed to determine the students' perceptions of teachers' implementation of technological pedagogical and content knowledge (TPACK) in the EFL classroom. This descriptive research was conducted at one of the Madrasah Aliyah in Pekanbaru. There were 106 tenth-grade students as the respondents. A questionnaire is used to collect the research data on students' perceptions. The finding revealed that students' perception toward teachers' implementation of TPACK in EFL classroom is positive perception, with a total mean score is 3.02, which means EFL students have a positive perception about teachers' implementation of TPACK in EFL classrooms. Based on this result, it can be said that the teachers have the ability and the awareness related to the importance of implementing TPACK to support the teaching and learning process, especially to increase students' comprehension and motivation in learning English.

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1. INTRODUCTION

Technology and education cannot be separated, and they are related to each other. Since the use of technology has become prevalent, it is almost always used in the teaching and learning process. Teachers need to incorporate technologies into the curriculum and understand the importance of technological integration in the curriculum. As Akyuz and Yavuz (2015) stated, electronic devices and internet resources are used by both students and teachers in many facets of language learning. Furthermore, teaching aims to combine these ideas through the use of technology, rather than simply conveying knowledge, developing specific skills, or improving learning and attitudes. Generally, technology has been effective in achieving the desired results (Kassem, 2018). This means that technology in education is not only about tools, applications, and software but also about how teachers implement technology in the teaching and learning process. It is caused that the development of technology has changed various aspects of human life, including education.

Currently, Indonesia needs teachers who master ICT in the recent era. Therefore, in order to adapt to teaching in the 21st century, teachers have to develop ICT skills and keep up with technological advancements, or other technology will take their place (Hafifah & Sulisty, 2020). In Indonesia, schools and teachers face issues such as inadequate teacher qualifications, limited subject knowledge, and insufficient proficiency in media and technology. Sumarna Surapranata, the general director of teachers and education staff at the Ministry of Education and Culture, stated that in 2019 the government possesses information solely about the 1.6 million instructors who participated in the teacher competence exam. Only 192 of them have a proficiency level exceeding 90. Many lecturers just present theories for pupils to memorise before testing them. The teachers hardly utilise technology in the classroom, despite the school's provision of ample technological resources including a projector, speaker, Wi-Fi, laptop, etc. They simply convey the information through lectures in the classroom. The teacher faces a significant challenge as the use of technology in teaching English is crucial for improving students' understanding. Therefore, extensive technological expertise may be necessary for this planning to address these difficulties effectively. The conceptual framework of Technological Pedagogical and Content Knowledge (TPACK) was introduced by Mishra and Koehler in 2009. The TPACK framework provides educators with a structured approach to comprehending technology integration.

The seven elements of TPACK were proposed by Mishra and Koehler (2008). (1) technical know-how, which includes familiarity with both antiquated and contemporary forms of technology, such as print media and digital video. (2) Having a firm grasp of the actual material that needs teaching or learning is known as content knowledge (CK). (3) Having a thorough grasp of the methods and practices employed in education, including how they include, among other things, the overall aims, values, and purposes of education, is what is referred to as pedagogical knowledge (PK). Fourthly, pedagogical content knowledge (PCK) explains how educators assess the subject, develop several ways to communicate it, and adapt lessons to accommodate diverse perspectives and students' prior knowledge. (5) Understanding the interplay and mutual influence of technology and content is what is known as technological content knowledge (TC). (6) TPK, or technological pedagogical knowledge, is an understanding of how the use of a particular technology impacts the classroom. (7) Technological pedagogical content knowledge (TPACK) is the combination of all three types of information. In order to fully grasp this information, one must go beyond a surface-level comprehension of technology, material, or pedagogy and view it as a developing body of knowledge that acknowledges the interplay between many forms of information.

Several researchers are interested in studying the conceptual underpinning of TPACK. Tai (2015) examined the impact of a workshop for Computer-Assisted Language Learning (CALL) teacher education that was driven by the Technological Pedagogical Content Knowledge (TPACK) model. Tseng et al. (2016) studied the correlation between the Technological Pedagogical Content Knowledge (TPACK) of Taiwanese English teachers and Second Language Acquisition (SLA). Nazari et al. (2019) analysed the disparities in perceived Technological Pedagogical Content Knowledge (TPACK) between novice and experienced English as a Foreign Language (EFL) instructors and how it impacts their professional growth. Najjari et al. (2021) aimed to evaluate and improve Iranian EFL teachers' technological pedagogical content knowledge (TPACK) by focusing on three objectives: assessing the current level of TPACK literacy among Iranian EFL teachers, determining the importance of TPACK literacy, and observing changes in perception after TPACK intervention. Tutunis et al. (2022) studied the TPACK framework and the utilisation of ICT (online tools) in teacher training to teach the English language in primary schools.

Besides, studies of TPACK in ELT have been conducted by many researchers in Indonesia. Draji et al. (2018) use surveys from 100 pre-service and in-service teachers to study how English language instructors might build TPACK and multimodal literacy. In addition, Taopan et al. (2020) specifically, the study aims to understand the difficulties and opportunities associated with implementing the TPACK framework in English education. Moreover, Kusuma (2021) also investigates the efforts made

by the universities and lecturers as well as the difficulties that they encountered during the integration procedures. Furthermore, in 2021 Irwanto investigated a systematic literature review related to the research trends in technological pedagogical content knowledge (TPACK) from 2010 to 2021. Based on the result, the studies on TPACK, the US was rated number one out of 26 countries, which are regularly reported in industrialized nations. Only 10% of the total articles came from nations outside the top 15 countries. It reveals that studies on TPACK in Indonesia are still limited. Hence, additional empirical studies must be carried out to employ TPACK to use technology in Indonesian EFL classroom. Since TPACK is the core of effective teaching, which outlines the types of knowledge a teacher needs for successful technology integration.

Based on the studies above, it can be concluded that research on the TPACK framework has been conducted by many researchers in many countries, but still limited in Indonesia. Moreover, most of them investigate the TPACK framework by analyzing the document, interviewing, and giving questionnaires to the teachers. Considering to the importance of TPACK integration and the limited empirical research in English education especially in Indonesia, there should be serious attention paid to this case. In this case, the researcher needs to see how the teachers implements the technology, pedagogy, and content in the classroom. Thus, to see how the teachers implement TPACK in EFL classroom, the researcher will see it from students' perspective, since the students as the subject in teaching and learning activities who participate directly in the classroom. Therefore, to fill this gap, the researchers formulated the research question "How are students' perception toward teachers' implementation of TPACK in EFL classrooms?"

2. METHODS

This research is descriptive research. According to Ary et al. (2009), a descriptive study is research that asks questions about the nature, incidence, or distribution of variables; it involves describing but not manipulating variables. This research was conducted at MAN 3 Pekanbaru. The sample of the research is ten grade students, and there were 106 students as the respondents in this research. A questionnaire is used to collect the research data of students' perceptions related to teachers' implementation of TPACK in EFL classroom. In this research, the researcher used close-ended questionnaires which were adapted from Baser et al. (2016). Then the questionnaire was validated by using construct validity, and it was valid through some revisions from the validator who is an expert in TPACK. The questionnaire was divided based on 7 components of TPACK and consists of 5 items for each component, for a total of 35 items. The measurement scale in this data uses an interval measurement scale, namely the Likert scale. This study uses a Likert scale with intervals of 1-4. After distributing the questionnaire, the researcher analyzed the participants' responses. The participants' responses were calculated by computing each score to determine the mean score. The researcher calculated the mean score by using the following formula:

$$\bar{x} = \frac{\sum x}{n}$$

Then, the researcher divided the results into the categories of interpretation which were formulated by Pimentel (2019) (see table 1). The students' perceptions are interpreted based on this mean score of interpretation. Thus, the result was described descriptively, and the conclusion was drawn based on the result.

Table 1. Rating Score of Perception Category

Mean Score	Category
1.00-1.75	Strongly Negative (Very Low)
1.76-2.50	Negative (Low)
2.51-3.27	Positive (High)
3.28-4.00	Strongly Positive (Very High)

3. FINDINGS AND DISCUSSION

3.1. Findings

The questionnaire results are analysed according to seven components of Technological Pedagogical and Content Knowledge (TPACK) to assess students' perception: Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK).

The following table also provides the total mean score and the category students' perception of TPACK. Based on the data description, it can be known that students' perception of each component are different. It can be seen in the following table.

Table 2. Students' Perception toward Teachers' Implementation of Technological Pedagogical and Content Knowledge (TPACK) in EFL Classroom.

No.	Component	Mean	Category
1.	Technological Knowledge (TK)	3.04	Positive
2.	Content Knowledge (CK)	3.17	Positive
3.	Pedagogical Knowledge (PK)	3.08	Positive
4.	Pedagogical Content Knowledge (PCK)	3.03	Positive
5.	Technological Content Knowledge (TCK)	2.96	Positive
6.	Technological Pedagogical Knowledge (TPK)	2.93	Positive
7.	Technological Pedagogical and Content Knowledge (TPCK)	2.95	Positive
Total mean score of TPACK		3.02	Positive

Overall, students' perception toward teachers' implementation of TPACK in EFL classroom is positive perception, with the mean score is 3.02. But, the mean score for every component of TPACK is different. Based on the table above, the component with the highest mean score is content knowledge (CK). The mean score is 3.17, and it is categorized as a positive perception. This is because more than 50 students agreed that their teachers had explained and written the material in English. More than 60 students also agreed that their teachers understood the English conversation and the written text in English. Lastly, more than 65 students agreed that their teachers had taught them the English material in the classroom with a good explanation.

In addition, the second highest mean score is pedagogical knowledge (PK). The mean score is 3.03, and it is categorized as a positive perception. In this component, more than 60 students agree that their teachers used a learning model, teaching method, and also supported them based on their characteristics in learning activity. Next, more than 65 students agreed that their teachers collaborated with them to support students' learning activities. Furthermore, more than 70 students agreed that their

teachers gave them a project which was appropriate for their level. Then, technological knowledge (TK) is the third highest component, which has the mean score of 3.04. Technological knowledge is categorized as a positive perception. It is because more than 80 students agree that their teachers understood and were able to operate the basic technological terms. More than 65 students agreed that their teachers used computer peripherals and technological equipment in the classroom. Furthermore, more than 50 students agree that their teachers can troubleshoot common computer problems. The last, more than 70 students agreed that their teachers used Ms. Office in the classroom.

Furthermore, the next highest mean score is pedagogical content knowledge (PCK). The mean score is 3.03, and it is also categorized as a positive perception. In this component, more than 70 students agreed that their teachers managed the classroom environment and used the appropriate learning model in the classroom. Then, more than 60 students agreed that their teachers used the appropriate teaching strategy, and learning method in the classroom and also evaluated them in the classroom. Hence, the next highest mean score is technological content knowledge (TCK). The mean score is 2.96, and it is categorized as a positive perception. It is because more than 65 students agreed that their teachers took the advantage of multimedia (such as video and slide shows), technology to teach learning material in order to increase students' comprehension, and also supported them in using technology to support their development of language skills. Furthermore, more than 70 students agreed that their teachers used the appropriate technology to explain the material and also used the collaboration tools to convey the learning material in the classroom.

Moreover, the next component is technological pedagogical and content knowledge (TPCK). The mean score is 2.95, and it is categorized as positive perception. In this component, more than 60 students agreed that their teachers gave them the opportunity to practice English with the appropriate technology and teaching strategy. They also agreed that their teachers combined the appropriate technology, teaching method, learning model, and learning content in the classroom. Furthermore, students also agreed that their teachers supported their professional development by using technology and resources to improve their teaching skills. Then, more than 70 students agreed that their teachers selected the appropriate technology in teaching to enhance how they teach and students learn. The last component, which has the lowest mean score is technological pedagogical knowledge (TPK), the mean score is 2.93, and it is categorized as positive perception. It is because, more than 70 students agreed that their teachers led them to use the technology legally, ethically, safely, and they also agreed that their teachers managed the classroom environment while using technology. And then, more than 60 students agreed that their teachers supported them in using technology in order to support learning models in the classroom, moreover, they also agree that their teachers used multimedia to support learning activities. Lastly, more than 50 students agreed that their teachers should take advantage of technology to evaluate students' learning in the classroom.

3.2. Discussion

The result shows that the highest mean score of students' perception is CK, with the mean score is 3.17, and followed by PK, TK, and PCK. Meanwhile, the result shows that students have low perception on the other components; TCK, TPK and the lowest component is TPK, with the mean score is 2.93. Generally, students' perception toward teachers' implementation of TPACK is positive perception to all components of TPACK. This means that the students perceived that their teachers had implemented technological integration to present the learning approach and learning content in good implementation. Based on this result, it can be said that the teachers have an ability and knowledge to implement TPACK in EFL classrooms. The teachers also agree and have an awareness to the importance of implementing TPACK to support teaching and learning process, especially to increase students' comprehension and motivation in learning English. It supported by Ringotama (2020), based on the result, most of the participants (75%) agreed on the importance of technological integration to support the teaching and learning process. Therefore, a good (high) implementation of TPACK

proficiency of EFL teachers can be considered as a positive result in terms of successful language learning and technology integration in English teaching.

The result of this research is in line with Fathi & Yousefifard (2019), they found that the EFL students considered their teachers to be more competent in the four components are TK, PK, CK, and PCK. However, they considered their teachers to be relatively less proficient in the three other components: TCK, TPK, and TPCK. In addition, the result of this research is similar with Ningtyas et al., (2023), they found that tertiary EFL students believed their teachers were competent in overall components of TPACK. Then, it was discovered that EFL students thought their teachers had a good level in four components: CK, TK, PK, and TPCK. Meanwhile, they argued that their teachers were generally having a moderate level in three other components, which included TCK, PK, and TK. This study revealed that, Indonesian teachers could choose and use the appropriate technology to present the learning content.

On the other hand, Ilmi et al. (2023) explored students' perceptions of EFL teachers' TPACK knowledge in an online classroom environment. The result of this previous research is mostly similar to this research, and they discovered that every student responded positively. Specifically, English teachers in Indonesia are able to choose and use the right technologies to their lessons. Teachers could use technology in new ways while maintaining a focus on students' needs. The findings of this study suggest that educators should be aware of the opportunities provided by commonly used technology.

In addition, Ginting et al. (2022) investigated students' perceptions of TPACK implementation in online learning. They found that the students were expecting that teachers would focus on some important elements of online learning, such as using the same learning management system (LMS) for all study programs, planning and designing practical online modules, organizing teaching materials that encourage students to think critically, delivering a variety of teaching materials and methods, intensifying teachers' presence in monitoring students' learning progress, inspiring students to learn, and more. Thus, this result can be considered as the description for the teachers to the importance of technology from the students' perspective. Teachers also have to consider the importance of technological integration in presenting learning approaches and explaining learning material. Therefore, the effective use of technology in education also depends on recognizing the needs of the students and choosing the appropriate methods for the content (Tsai & Tsai, 2019).

Furthermore, Liu et al. (2014) contend that a robust Technological Pedagogical Content Knowledge (TPACK) aids English as a Foreign Language (EFL) teachers in recognising students' challenges and fostering connections among students and between teachers and students. Teachers must improve their capacity to apply TPACK through TPACK training or seminars. Najjari et al. (2021) discovered that Iranian EFL teachers' perceptions of TPACK improved after participating in TPACK workshops, demonstrating that the TPACK workshop served as an effective professional development programme that enhanced EFL instructors' TPACK literacy. Therefore, they believed that TPACK workshops were effective in enhancing EFL teachers' TPACK.

Moreover, Ersanli (2016) found that the workshops had a beneficial impact on TPACK subcategories such as content knowledge, pedagogical knowledge, and pedagogical content knowledge. He suggested that workshops and training sessions were successful in raising pre-service English language teachers' understanding of the potential and useful use of digital technology in the classroom for educational goals. By creating authentic learning resources, English language teachers could obtain knowledge and abilities to integrate their content knowledge and pedagogical understanding with technology. Thus, it is recommended that TPACK workshops for material development be included in teacher training programs.

4. CONCLUSION

This study concluded that the students' perception toward teachers' implementation of Technological Pedagogical and Content Knowledge (TPACK) was positive perception which was shown on the finding table. It proved that the teachers utilized technology in teaching and learning

process. In addition, the teachers are required not only focus on using technology but also related to the pedagogical knowledge and content knowledge. Thus, this perception is as a vehicle for the students to achieve their learning objectives, especially to enhance their language ability. The various ways of teaching foster students' engagement and creativity. Positive content knowledge (CK) perception is highest among students. Teachers understand how concepts are presented in the classroom and have implemented the material. Teachers must evaluate standards-based curriculum, successful pedagogical practices, and technology affordances and limits when preparing to use educational technologies. Therefore, teachers must integrate technology into the curriculum and grasp its value to create an effective teaching and learning process. Teacher must present the most creative learning activity. Teaching and learning reflect the rising integration of material and technology in the curriculum. The researchers proposed that teachers attend workshops and discuss self-development with colleagues to improve their skills. Before entering the classroom, teachers should have all the necessary media, materials, and learning models. Teachers can implement TPACK well.

Hence, the researchers suggested that future research might go on further into different variables, methods, or instruments. Such as investigating students' perceptions based on gender or observing teachers' implementation based on teaching experience and uncovering their difficulties in implementing TPACK by conducting interviews. Finally, the researchers hope this research can be useful as a reference for future research and give readers an advantage.

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Conflict of Interest: The authors, Asmul Hayati and M. Zaim declare that there is no conflict of interest.

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