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Professional Teachers' Self-Assessment on Technological Pedagogical Content Knowledge (TPACK) in English Language Teaching

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Abstract

The research used a descriptive survey design to offer an assessment in order to find out teachers' perspective about TPACK implementation in English Language Teaching classroom. A total of 32 professional English teachers took part in this study by completing a TPACK survey questionnaire. Mean and standard deviation were used to analyze the qualitative data. The result showed that TPACK understanding of in-service professional English teachers is in the moderate level. Meanwhile, the technological and pedagogical integration result that the respondents showed satisfied level of competency. In general, comparative result in the three areas of ICT integration found that the ELT teachers are relatively higher.

1. Introduction

The rapid development of Information and Communication Technology (ICT), especially after the COVID-19 pandemic, has significantly transformed educational practices. Teaching and learning activities increasingly rely on digital technologies, requiring both teachers and students to adapt to technology-based instruction. Consequently, education in the 21st century emphasizes not only subject mastery but also skills such as collaboration, critical thinking, creativity, problem-solving, and effective use of technology. Therefore, teachers are expected to integrate appropriate technological tools and teaching approaches to support meaningful learning experiences.

This situation affects teaching and learning process with a major shift from mostly conducted in conventional way to Internet Communication Technology (ICT) used (Pujilestari, 2020). New standards are set by these improvements for both students and teacher. As the result, students are expected to develop twenty-first century abilities in order to live up to these expectations (Valtonen et al., 2017).

The twenty-first century skills include the skill to do collaboration, to have problem solving, innovative and creative thinking, as well as to make use of information and communication and technology (ICT). Therefore, to compel with the rapid change and demand on education, teachers are required to be knowledgeable about different teaching approach and appropriate ICT usage.

In response to these changes, the integration of technology into teaching has become an essential responsibility for teachers. Chieng and Tan (2021) stated that if the focus of earlier studies on ICT integration was mostly on student outcomes, the more recent studies have turned the focus to teachers' development of students' awareness.

Chieng and Tan (2021) also pointed out that the emphasis of education technology studies has evolved from simply teaching technological skill to successfully incorporating technology into the classroom. Mishara and Koelher (2006) emphasized that teachers should master not only content and pedagogical knowledge but also the technological in the combinations of the three: technological, pedagogical, and content knowledge.

The idea of technological pedagogical content knowledge (TPACK) offers a theoretical framework about how ICT is implemented in teaching and learning process. This framework can be used to identify how teachers view various informational dimensions and to assess the professional development requirements of teachers. Mishra and Koehler (2008) described that TPACK is a feasible model to better understand what teachers' competencies needed and how an effective teachers' training can be developed.

There are some reasons why TPACK is believed to be beneficial and is considerate to be important topic in educational field. Hidayati et al. (2018) noted that TPACK contributes to help teachers compose lesson plans for the subject

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matter, to integrate pedagogical, content, and technological element in the learning, as well as to encourage teachers develop professional competence. Additionally, TPACK is believed as the most suitable approach to promote 21st century skills, including language, computer, as well as thinking skill (Wang, 2022). In English Language Teaching (ELT), the technology integration helps to improve vocabularies skill (Bytheway, 2015; Ramanair et al., 2017), to enhance language output (Ramanair et al., 2017), to promote collaborative learning (Bikowski & Vithanage, 2016) and to increase writing quality with appropriate grammar (Ramanair et a., 2017). Furthermore, the use of technology in teaching is inevitable; therefore, there have been plenty research on this matter.

Most of studies in TPACK lately focus on developing assessment and making evaluation on the implementation of the framework in various subjects. A study by Mensah et al., (2021) about TPACK assessment in geography found that content and pedagogical knowledge on teachers are higher compare to the technological knowledge.

Relatively same result is also shown in science like biology and math where teachers are less confident in their technological knowledge (Rolando et al., 2021; Yurinda & Widyasari, 2022; Ibrohim et al., 2022). Meanwhile a contradict result were presented in the field of English Language Teaching. A survey by Wang (2022) on EFL teachers about TPACK related to critical thinking skill around Japan, China, Taiwan, and France revealed the teachers are approximately higher in TPACK competence. Despite the number of studies had been done, this research is aimed to continue the progress of the previous research to investigate the practical application of ICT in teaching.

Although numerous studies on TPACK have been conducted, most of them focus on general subject areas such as science, mathematics, and geography. Limited studies specifically investigate TPACK implementation in English Language Teaching (ELT), particularly among professional English teachers. Since language teaching requires distinctive pedagogical approaches and technology integration practices, ELT-specific investigations are still necessary to better understand teachers' competencies in integrating technology, pedagogy, and content knowledge.

Therefore, this study aims to investigate professional English teachers' TPACK competencies in the context of ELT. As the result, there is always needed continual supervision and control over the use of ICT in reality. The last, the studies about TPACK mostly conducted for all subjects, meaning there are still less accurate assessment on the competence about specific subjects. Therefore, in attempt to fill this gap, the researcher though that assessment on ICT implementation in is still necessary particularly in English Language Teaching. In line to the problem mentioned above, this study will find oud the degree of professional English teachers' technological content knowledge, technological pedagogical knowledge, and the technological, pedagogical, and content knowledge.

2. Method

Research Design

This study employed a descriptive quantitative research design using a survey approach to investigate ELT teachers' understanding of TPACK implementation. This design of this method is carried out using descriptive quantitative research approach. This research is in purpose to investigate the understanding of TPACK implementation by ELT teachers. Based on this purpose, the suitable design to conduct the study in form survey investigation (Creswell, 2012), so that researchers can acquire strong generalization from population samples and survey findings fast (Wang & Cheng, 2020).

Participants

The participants of this study were 32 English teachers who graduated from the Teacher Professional Education Program (PPG) between 2019 and 2020. The population taken is random sampling. The numbers of potential populations are reduced due to characteristics of population criterion. The respondents are currently active teachers in secondary education, junior and high school, therefore non-teacher respondents could not be included. Here are the characteristics of the total respondent involved in this study:

Table 1. Characteristics of the Participants

Criteria	Group	Total	Percentage
Age	21-25	0	0
	26-30	22	68.8%
	31-35	11	34.4%
Gender	Male	5	15.6%
	Female	27	84.4%
Last Degree	Bachelor's Degree	31	96.6%
	Master's Degree	1	3.1%
Teaching Experience	Less than a year	3	3.4 %
	1-2 years	5	15.6%
	3-5 years	16	50%
	over 5 years	8	25%
		N = 32	

Instruments

The instrument is in form of questionnaire consists of 35 statements classified into technological competence, content, pedagogic as well as the ICT integration skill in English Teaching Classroom. The Linkert Scale were applied in this survey, consist of five responses include, strongly disagree (SA), disagree (A), neutral (N), agree (A), and strongly agree (SA). Each answer option contains

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numbers, ranged from one to five. Moreover, the instrumentation used is adopted from Illi et al. (2019) about TPACK survey for English teachers. Before being used into this research, the instruments had gone through previous the validity and reliability test. The validity test is in form of face validity using expert judgements and Content Value Index (CVI) method to verify content validity. Then, the survey constructed into Google Form online survey, before finally distributed to the population via WhatsApp link.

Data Collection

The questionnaire was distributed online using Google Forms. The survey link was shared through WhatsApp to reach the participants efficiently. The data were collected through an online survey using a questionnaire adapted from Illi et al. (2019). Before the data collection process, the questionnaire was validated through face validity and Content Validity Index (CVI) assessment by expert judgment. After the validation process, the questionnaire was converted into a Google Forms survey. The survey link was then distributed to the participants through WhatsApp to facilitate easier access and response collection. The participants completed the questionnaire voluntarily based on their experiences in integrating technology into English language teaching. The data collection process was conducted after all respondents met the research criteria as professional English teachers who had completed the Teacher Professional Education Program (PPG).

Data Analysis

The data from the questionnaire were analyzed using mean calculation and standard deviations. The mean data were counted from the average answers of the respondents. On the other hand, the standard deviation was used to measure the distribution of data in a population and how near the data is to the mean value. It is the most accurate measure of spread since it defines the size of each observation unit's range (Deborah, 2016). Next, the data from both calculation where interpreted based on Linkert's Scale.

3. Result

The collected data from the questionnaire was presented in the table below. It was shown the score of seven categories consist of technological, pedagogical, content skill, and the integration competence.

Table 2: The Level of Professional Teachers' TPACK

Constructs	Mean Score	SD
TK	3.99	0.69
PK	4.13	0.64

CK	3.79	0.57
PCK	4.11	0.64
TCK	4.19	0.58
TPK	4.08	0.60
TPACK	3.93	0.66

Overall, TCK obtained the highest mean score, indicating that the teachers were confident in using technology to support English content delivery. However, the overall TPACK score remained at a moderate level.

From the table above, it is found that TCK placed as the highest mean score, followed by PK and PCK. The highest mean TCK (4.19) indicates that the respondents are mostly confident with their ability in using technology to deliver content, English learning, in the classroom. The higher result in PK and PCK shows that respondents demonstrate strong confidence in pedagogical knowledge. On the other side, TPACK score (3.93) demonstrates that the ICT integration skill in teaching and learning of the professional teachers in this study are classified in moderate level. They are not showing less assurance though it still indicates that they are competence in that field. Further, the elaboration about the data finding in this study will be focused on the result of integration on technological aspects, TCK, TPK, and TPACK.

As it was displayed on the table, TCK is the most dominant construct among other aspects. In the survey by Illy et al. (2019), TCK are presented in the following statements:

Table 3. Technological Content Knowledge of English Teachers

No Item	***TCK (Technological Content Knowledge)***	**Mean**
21	I know about technologies that I can use for teaching specific concepts in English.	4.00
22	I know about the technologies that I can use for teaching English.	4.50
		4.19

These findings suggest that the respondents were familiar with various technologies that can support English language teaching.

The item 22 shows the highest means score among all items in the questionnaire, followed by item 21 score which is considerably high. For the highest mean, there are 23 among 32 total respondents chose A*gree* in the answer option, at the same time other nine respondents chose *Strongly Agree.* These findings imply that the respondents as the English teachers is knowledgeable about the what kinds of technologies can be used for teaching the language. It can also be inferred that the respondents are familiar with the use of media social,

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blogs, webs, and practical applications in their teaching.

In TPK category, there are five items I form of statement about the teachers' understanding about technological integration into teaching method. Below are the data fining of TPK in this study:

Table 4. Technological Pedagogical Knowledge of English Teacher

No Item	***TPK (Technological Pedagogical Knowledge)***	Mean
23	I can choose technologies that enhance the teaching approachesfor a lesson.	4.06
24	I can choose technologies that enhance students' learning for alesson.	4.22
25	I am thinking critically about how to use technology in my class-room.	4.13
26	I can adapt to the use of the technologies that I am learning aboutdifferent teaching activities.	4.09
27	I can encourage online interactivity among students in my class.	3.88
		4.08

The results indicate that teachers were generally able to integrate technology into teaching strategies, although online classroom interactivity still needs improvement.

Based on the data presented in Table 4, the average mean of TPK score are slightly below TCK. The data showed the item no 25 as the highest and the item no 27 is the lowest among its category. From the result, it can be inferred that the respondents have a range of ICT sources to encourage students' motivation in learning. At the same time, the lowest score probably indicates that they do not show much confident in encouraging online interactivity among students during the class.

The last data presented in this study is TPACK result finding, related to teachers' understanding to the combination of pedagogic, content, and technological aspects in teaching and learning. This category contains eight items in total. The following are the result for TPACK aspect on ELT teachers:

Table 5. Technological Pedagogical Content Knowledge of English Teachers

No Item	***TPACK (Technological Pedagogical Content Knowledge)***	Mean
28	I can teach lessons that appropriately combine English, technologies and teaching approaches.	4.03
29	I can select technologies to use in my classroom that enhancewhat I teach, how I teach and what students	4.13

	learn.	
30	I can use strategies that combine content, technologies and teaching approaches that I know.	4.06
31	I can provide leadership in helping others to coordinate the use ofcontent, technologies and teaching approaches at my school.	3.81
32	I can provide leadership in helping others to coordinate the use ofcontent, technologies and teaching approaches at my district.	3.47
33	I can choose technologies that enhance the content for a lesson.	4.00
34	I can use technology to predict students' skill in a particular topic in English subject.	3.97
35	I can use technology to predict students' understanding of aparticular topic in English	4.00
		3.93

In general, the respondents showed positive perceptions toward integrating technology, pedagogy, and content knowledge in English teaching.

From the data, it shows that the respondents have positive attitude toward the activity involve designing lesson plan, selecting teaching media, conducting various teaching strategies, and assessing using ICT integration. Yet, they probably believe that their ICT integration skill is not on the level where they can direct and lead others in utilizing ICT outside of the classroom. This concern can be inferred from the respond for the items no 31, 32, and 34.

4. Discussion

Overall, the TPACK investigation on professional English teachers in this study is on moderate level. From the data analysis above, it is revealed that professional English teacher has average level of ICT integration skills. The higher scores in TCK and TPK may indicate that teachers are already familiar with using technology and integrating it into classroom activities.

However, the lower overall TPACK score suggests that combining technology, pedagogy, and content simultaneously remains challenging for many teachers. This may be influenced by limited training, lack of institutional support, or insufficient experience in designing technology-integrated instruction. Contrast to the TCK and TPK findings, the teachers are much more confident in their ability to use technology in exploring subject and implementing teaching strategies and organizing the classroom.

The are some similar findings about this topic, to support this claim (Mensah et al.,2021; Yurinda & Widyasari, 2022; Ibrohim et al., 2022). This finding is

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consistent with Mensah et al. (2021), who reported that teachers often demonstrate confidence in separate technological or pedagogical domains, but face difficulties when integrating all components simultaneously. This similarity suggests that comprehensive ICT integration remains a common challenge across educational contexts. The studies by Mensah et al. (2021) reported that even though teachers are good in technological content integration and technological pedagogical integration, they find that the integration of the three is more difficult.

The researcher argues the similar occurrence is because teachers might have different view about the implementation of the content, pedagogic, and technological aspects. Additionally, Ibrohim et al. (2022) explained in the study about TPACK in relation to teachers' perception and demographic factors affected the result of TPACK self-evaluation.

For example, female teachers perceived themselves as less qualified in technological aspects, thus affected their assessment on their TPACK understanding. For ELT teahcers' level of TPACK in particular, cultural factors also involve in teachers understanding of how they should implement ICT in teaching. A survey by Wang (2022) on EFL teachers in some countries, like Japan, China, and Taiwan showed various results in TPACK competence due to the participant nationality background.

As the result, the level of their TPACK evaluations is various, although the result is relatively higher but comparatively less in number compared to technological content integration and technological pedagogical integration. In the end, the overall finding of teachers' degree of ICT integration competency might imply that the rapid growth of technologies is not yet in line to the readiness of the human resources. The findings imply that professional development programs should focus not only on technological skills, but also on practical strategies for integrating technology into English language teaching activities.

Although the teachers demonstrated positive perceptions toward technology integration, fully implementing the TPACK framework remains challenging. One possible reason is that teachers may be familiar with using technology separately, but still experience difficulties in combining technological, pedagogical, and content knowledge simultaneously in classroom practice. In addition, institutional challenges such as limited technological facilities, insufficient training opportunities, unstable internet access, and lack of administrative support may also affect teachers' ability to implement effective ICT-integrated instruction.

The findings of this study have several implications for educational practice. First, teacher training programs should focus not only on improving teachers' technological skills but also on helping them integrate technology, pedagogy, and content effectively in classroom instruction. Second, curriculum developers should incorporate more technology-integrated learning activities into English language teaching to support the development of teachers' TPACK competencies. Finally,

educational institutions and policy makers should strengthen ICT policies by providing adequate technological facilities, continuous professional development programs, and institutional support for technology integration in schools.

5. Conclusion

The current study had employed self-assessment for professional English teachers to find out the level of their understanding of TPACK models. Based on the finding it can be implied that the level of ELT teachers' ICT integration, particularly the professional English teacher, are on moderate level. The teachers could perform adequate teaching ability, subject competency and IT skills, but seem less confident to implement the integrations of the three.

Nevertheless, there is still room for better progress in the future since showing teachers might do a better job of staying up to date on growth of technologies and comprehending interrelation use in the classroom application. In order to help the teachers' lack of the technical ability to incorporate it into the teaching, the future teacher personal development can be focused more in this specific area.

This study might have some restrictions, that could be the take into a count for next the next inquiries. The boarder number of respondents are needed for more representative result since the present study is limited in numbers of participants involve in the survey. The instrumentation of the research can still be improved into more specific and descriptive of language teaching learning and learning illustration.

On the other hand, this study still has some beneficial to implication both for the teachers as the directly affected and the educational system as a whole. It is expected that this self-assessment helps the teachers aware of their current skill and understanding about the ICT integration so they could improve themselves in the lacking area. In order to help the teachers, the future teachers' professional development can be focused more in this specific area.

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