# OTHER DISCOVERIES REGARDING TPACK OF ENGLISH TEACHERS

**Isti Destiani[1)], Sri Setyarini[2)], Rojab Siti Rodliyah[3)]**
[1,2,3] Universitas Pendidikan Indonesia
[1]email: istidestiani@upi.edu
[2]email: setyarini.english@upi.edu
[3] email: rojab@upi.edu

## Abstract

This study is aimed to investigate English teachers' TPACK level and explore its impact on teaching English to Vocational high school students in Garut. In this mixed-method study, questionnaires, interviews, and observation were used as the instruments for collecting the data. The participants of this study were 50 vocational high school English teachers in Garut. After collecting the data from the questionnaire, this study showed various results for each domain. On average, more than 60% of the participants had a high level of TPACK. And the rest of them had an adequate and low level of TPACK. In addition, based on the interview, factors that influenced the differences in TPACK level among the participants were divided into three aspects: technology, pedagogy, and content knowledge. Factors that influence the technology aspects were facilities, technology mastery, and willingness and curiosity. Meanwhile, factors of pedagogy are influenced by teaching experience and strategy, training, and certification from the government. Whereas, factors of content knowledge are caused by educational background, age, and English knowledge mastery. Thus, English teachers with TPACK levels impact their teaching practices in vocational high schools. Most of them applied technology in the classroom, such as using laptops, projectors, audio and video file, PowerPoint, and digital book. Besides, they also used many teaching strategies with English knowledge mastery in teaching so that their students were more enthusiastic about learning English. This study is expected to benefit the teachers as they derive relevant details for their development and professionalism.

**Keywords:** *English teachers, TPACK*

## Background of the study

TPACK framework seeks to assist the development of better techniques for discovering and describing how technology-related professional knowledge is implemented and instantiated in lesson activities practice. The activities practice means a set of classroom activities and interactions that have characteristic roles for participants, rules, patterns of behavior, and recognizable material and discursive practices associated with them (Windschitl, 2004). Therefore, TPACK acts as a useful framework for thinking about what knowledge should teachers have to integrate technology into teaching and how they might develop this knowledge in their teaching practice.

TPACK concept, technique, and interactive roles play in authentic teaching and learning environments, as well as in teaching and learning English because the need for educators to integrate the use of technology in the classroom is growing over the past few years (Ringotama & Maret, 2020). In addition, (Szeto et al., 2016) declared that the use of ICT in the classroom, however, is still at the low level

of what the educational program expects. Whereas, when technology is integrated into English teachers' pedagogical knowledge, the difference between low and high teacher categories sometimes depends on teachers' good understanding of how technology can be used in teaching English strategies (Liu et al., 2014). It relates to previous research by (Nunan & Carter, 2001) a strong TPACK is especially significant for EFL teaching because today communicative language teaching has been recognized as a more effective method to teach English for the communicative purpose, and such a purpose is reachable in the classroom only with the strong support of technology.

Professional teachers not only need to manage content and pedagogical knowledge as informed by (Shulman, 1986) 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 et al., 2010) is needed, too.

Recently, (Nazari et al., 2019) showed 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 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. Thus, the purposes of this study are 1) to investigate what vocational high school English teachers' TPACK level 2). to find out what factors influence vocational high school English teachers' TPACK level 3). to explore the impacts of vocational high school English teachers' TPACK level on English teaching practices.

**Research Methods**

This study used mixed methods because of the type and the objectives, this study used mixed methods that involve combining or integrating research (Wisler, 2009) explained that mixed methods research focuses on combining both quantitative and qualitative research and methods in a research study. The data in this study mixed the quantitative and qualitative begins from general into detailed information which they combined, support, and continuum. After that, the quantitative and qualitative data are connected to each other through the phases of research. So to make the richer data and in this case, is TPACK level, factors, and their impacts hopefully could be achieved after this study is conducted.

To collect the data, this study shared an online questionnaire adopted from (Schmidt et al., 2009) and modified as the need of this study to English teachers through a Whatsapp group that consisted of more than 200 English teachers in Garut. After 2 weeks since the questionnaire was shared, 50 vocational high school English teachers already filled it. By using the snowball sampling technique with the purpose that more teachers filled the questionnaire, the more accurate the result of the survey was. In snowball sampling, researchers identify a small number of individuals with the characteristics they are interested in. These people are then used as informants to identify or put the researchers in touch with, others who qualify for inclusion, and these, in turn, identify yet others (Cohen et al., 2010b). The questionnaire consists of a survey of teachers' technological knowledge (TK), content knowledge (CK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technological content knowledge (TCK), and technological pedagogical content

knowledge. According to (Mishra & Koehler, 2006) it is knowledge of the existence, components, and capabilities of various technologies as they are used in teaching and learning settings, and conversely, knowing how teaching might change as the result of using particular technologies. The data collection was then calculated using a Likert scale with category very high (score 5), high (score 4), fair (score 3), low (score 2), and very low (score 1).

After that, this study used interviews with five teachers who have very high, high, fair, low, and very low TPACK levels to investigate what factors influence the teachers' TPACK level differences. (Cohen et al., 2010a) mentioned that interview is a tool for collecting data that is very flexible; the interviewer's control over the order of the interview can be maintained while spontaneity is still given the space, and the interviewers can persuade their interviewees to give a response about complex and profound issues besides the complete answer. The interview was conducted using Bahasa Indonesia, then the recording of the interview is transcribed and classified using English. The last, this study conducted an observation to five classes of the participants who had different TPACK level (high, medium, and low level derived from the result of questionnaire and interview). It was conducted twice a week of each participant to explore what are the impacts of English teachers' TPACK level on their teaching practices in vocational high school.

## Finding & Discussion

The first section discussed the finding derived from the questionnaire as follows:

**Percentages of English teachers TPACK level**

| Domain | TPACK Level Category | | | | |
|---|---|---|---|---|---|
| | **Very High** | **High** | **Fair** | **Low** | **Very Low** |
| Technology knowledge (TK) | 10% | 61% | 22% | 4% | 3% |
| Content knowledge (CK) | 8% | 64% | 18% | 6% | 4% |
| Pedagogical knowledge (PK) | 8% | 68% | 18% | 4% | 2% |
| Pedagogical content knowledge (PCK) | 12% | 58% | 26% | 2% | 2% |
| Technological content knowledge (TCK) | 4% | 74% | 16% | 4% | 2% |
| Technological pedagogical knowledge (TPK) | 10% | 63% | 22% | 3% | 2% |
| Technological pedagogical content knowledge (TPACK) | 10% | 64% | 22% | 2% | 2% |
| **Average** | **9%** | **64%** | **21%** | **4%** | **2%** |

**Table 1. Percentage of vocational high school English teachers TPACK level**

Based on the table of the percentage of English teachers' TPACK levels, most of the participants had a high level. On average, 9% of the participants had 10% a high TPACK level, 64% of them had a high level, meanwhile, the 21% of them had a fair level, 4 of them had a low level, and the rest of them, 2%, had very low of TPACK level. The data above showed that vocational high school English teachers' TPACK levels had various levels. Fortunately, most of them had a high level of TPACK. Only a few of them had low and very low levels. The finding of this research is in line with (Archambault & Crippen, 2009). They found that teachers in their study had the most confidence in their pedagogical knowledge (PK). Also, (Jang, 2010) added that teachers had more self-confidence in content knowledge (CK). For the rest of the teachers, even though the result of the questionnaire showed that they

had a low level of TPACK, it doesn't mean they didn't understand the technology, pedagogy, or content knowledge. They seem just less confident to confess their skills in some aspects of it. However, most of them agree that they need any more knowledge and training to improve their TPACK mastery especially in teaching English in vocational high school.

Based on the collected data, the TPCAK level differences among the teachers were caused by some factors. The factors of TPACK level differences of the English teachers in Garut are represented as follows:

**Factors of TPACK level differences**

| TPACK level components | | |
|---|---|---|
| **Technology** | **Pedagogy** | **Content Knowledge** |
| Facilities | Experience | Educational background |
| Technology mastery | Training | Age |
| Willingness and curiosity to technology | Certification | English Knowledge mastery |

**Table 2. Components that influence teachers had various level of TPACK**

Based on the interview with five of the participants, the data then were classified into three sections namely technology, pedagogy, and content knowledge. Technology components were caused by technology facilities, technology mastery, and willingness and curiosity about technology. Meanwhile, factors related to pedagogy were teaching experiences, teachers' training, and certification. Next, factors related to content knowledge were caused by linear educational background, age productivity, and English knowledge mastery.

The following below is the detailed result of each category of the components to investigate the factors that influence the TPACK level of English teachers in vocational high school in Garut.

**Factors of TPACK level related to Technology**

| Teacher | Level | Technology components | | |
|---|---|---|---|---|
| | | Facilitation | Mastery | Willingness & curiosity |
| 1 | Very high | √ | √ | √ |
| 2 | High | √ | √ | √ |
| 3 | Fair | √ | - | √ |
| 4 | Low | - | - | √ |
| 5 | Very low | √ | - | - |

**Table 3. Factors of TPACK level related to Technology**

Based on the interview, the first factor of their skills in technology is influenced by the facilities of the school. *"I know to use technology in teaching, but in this school, the facilities are still limited, so I use technology when the material I teach really needs technology tools to be displayed directly to the students".* Schools with sophisticated facilities helped teachers to improve technology mastery. The facilities that can help teachers and students learn for instance: a laptop, projector, stable signal, internet accessibility, and many online features. Unfortunately, not all the schools facilitated the teachers and students using technology in English learning. Most of them said that one school only had one or two projectors, so not seldom do they need to shift the schedule for using it even though they are already prepared to use technology in the classroom. The second factor is related to technical mastery. Not all the teachers understand well how to use technology, thus, they prefer to teach manually. The third reason is willingness and curiosity. Due to the sophisticated technology that day to day, some English teachers are ready to accept and learn it, but a few teachers are also sometimes tired because they need to focus on teaching and learn something new at this time.

**Factors of TPACK level related to Pedagogy**

| Teacher | Level | Pedagogy components | | |
|---|---|---|---|---|
| | | Experience | Training | Certification |
| 1 | Very high | √ | √ | √ |
| 2 | High | √ | √ | √ |
| 3 | Fair | √ | √ | - |
| 4 | Low | √ | - | - |
| 5 | Very low | √ | - | - |

**Table 4. Factors of TPACK level related to Pedagogy**

Still based on the interview, the second factor of pedagogy knowledge are teaching strategies and experiences, teachers' training, and certification. Most of the participants had teaching experience of more than 2 years. So, they were familiar with teaching strategy and activity. Due to their experiences, they also sometimes come to teachers' training from their school or government program even not routinely but it influenced their mastery of pedagogy knowledge. *"I think it can be better if the English teachers follow many pieces of training either from government or private organization, I believe it can improve our skills as English teachers."* Besides, some of the teachers who already teach more than 10 years already had a certification from the government so they are tested to be teachers with many criteria of professionalism and good teachers. Related studies conducted by (Mahdum, 2015) which found sub-domains the score of senior English teachers in Pekanbaru is relatively in a 'good' category, especially in the sub-domain related to pedagogical and content. Meanwhile, the TPACK of senior high school in-service physics teachers in North Maluku Province is still in the low category (Masrifah et al., 2018)

**Factors of TPACK level related to Content Knowledge**

| Teacher | Level | Content knowledge components | | |
|---|---|---|---|---|
| | | Education background | Age | English knowledge |
| 1 | Very high | √ | √ | √ |
| 2 | High | √ | √ | √ |
| 3 | Fair | √ | √ | √ |
| 4 | Low | √ | - | √ |
| 5 | Very low | √ | - | √ |

**Table 5. Factors of TPACK level related to Content Knowledge**

Table 5 showed the factors that influence TPACK level related to pedagogy are educational background, age, and English knowledge mastery. From the five participants in the interview, all of the teachers had linear education background that is English education. The differences in content knowledge level can be seen from age. Teachers of productive ages tend to have a piece of better content knowledge. Because they tend to have more effort to learn something new including pedagogy knowledge than teachers of non-productive age. *"I know technology improves all time, but in my unproductive age, it is difficult enough for me to follow them, not because I'm lazy to learn something new, nevertheless my ability may already different now. But I always try my best to teach my students as well as I can".*

**The impacts of English TPACK level on English teaching practices**

As a result of observation, it can be seen that the impacts of English TPACK level on English teaching practices vary. Most English teachers with high TPACK levels applied their skills in their teaching. For instance, they always used technology in their teaching. Second, they used many strategies to teach to interest the students in the material. The last, they also are confident to teach due to their mastery of

English knowledge related to their vocational high school program different from teachers with a low level of TPACK, they tend to teach manually and are less interesting. Recently, (Nazari et al., 2019) show that there are some differences in the understanding of technology between novice EFL teachers and experienced EFL teachers.

Thus, the TPACK level of English teachers is important to motivate the students, especially in vocational high school. That's why vocational high school English teachers in Garut need to improve their TPACK level much as sophisticated technology arises. The development of the teachers in the TPACK aspects influences the students' enthusiasm for learning and skills in English. Moreover, vocational high school students tend to have a target working after graduating from vocational high school directly so it will help them to be ready to face their future careers. It is in line with (Destiani & Purnawarman, 2020) that found teaching experiences, good performance, motivation in the classroom, having high-quality feedback, interactive dialogue with students, facilitating students' and teachers' development, and experiences of joining teachers' training are criteria of good TPACK. Those strengths influenced the teachers' ways of teaching practices in the classroom. They became thriftier, confident, and wise while giving feedback, using a rubric, and facing problems related to assessing practices.

## Conclusion

As one of the important ways to improve teachers' development and students' ability in learning English, the continual evolution of technology, pedagogy, and content often brings new learning activity types to light. Given the ever-evolving nature of educational research and practice, and of TPACK's defining elements, it is clear that what we face is at once a tall order and an appealing opportunity: to continue to invent, revise, expand, update, test, and otherwise explore the teacher's level and development. In order for the potential and usefulness of TPACK, its challenge, its factors, and its impact to be realized, researchers and English teachers should work together to shore up the challenges of TPACK on teaching practices, especially in vocational high schools. Future programs and research should be directed toward the new program related to technology, pedagogy, and content knowledge aspects to contribute to the development of English teachers in Garut.

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