

EXAMINING NOVICE AND EXPERIENCED JUNIOR HIGH SCHOOL TEACHERS' PERCEIVED TPACK AND THE INFLUENCES ON THE PROFESSIONAL DEVELOPMENT

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Abstrak: Penggunaan teknologi dalam pendidikan sangat signifikan saat ini. Blended learning digunakan di Indonesia yang mengharuskan siswa dan guru berkomunikasi melalui media sosial. Siswa dari SMP Karanglewas, masuk sekolah secara bergiliran sesuai jadwal, dan ketika siswa belajar di rumah, guru harus menyampaikan materi atau tugas melalui media sosial. Peneliti akan mempelajari persepsi guru pemula dan berpengalaman tentang TPACK, serta kegiatan yang dilakukan guru berdasarkan penggunaan teknologi mereka. Ada dua pertanyaan penelitian: Apa persepsi guru pemula dan guru berpengalaman tentang TPACK? dan Sejauh mana tindakan mereka terinspirasi oleh TPACK? Tujuannya adalah untuk mengetahui variasi TPACK pemula dan pengajar berpengalaman di SMP Karanglewas, serta mempelajari pengaruhnya terhadap pengembangan profesional dan perilaku yang diilhami oleh TPACK. Temuan dimana guru dapat menerapkan TPACK dengan baik meskipun membutuhkan bantuan orang lain dan perbedaan antara guru pemula dan guru berpengalaman dalam hal teknologi berbeda karena guru pemula memiliki pengetahuan teknologi tinggi tetapi guru berpengalaman, baik dalam pengetahuan konten pedagogi.

Kata-kata kunci: TPACK; pengembangan profesional; guru pemula; guru berpengalaman; pengaruh TPACK

Abstract: *The use of technology in education is highly significant nowadays. Currently, blended learning is used in Indonesia, which requires students and teachers to communicate via social media. Students from SMP Karanglewas, enter school in turn according to the schedule, and when students study at home, the teacher must deliver materials or tasks through social media. The researcher would learn about the novice and experienced teachers' perceptions of TPACK, as well as the activities that teachers took based on their usage of technology. There were two study questions: What are novice and experienced teachers' perceptions of TPACK? and To what extent have their actions been inspired by TPACK? The objectives were to investigate beginner and experienced SMP Karanglewas instructors' variations in their TPACK, as well as to learn about the influences on professional development and the behaviours inspired by TPACK. The findings where teachers could apply TPACK well even though they need help from other people and the difference between novice and experienced teachers in terms of technology was different because novice teachers had high technology knowledge but experienced teachers, were good at pedagogy content knowledge.*

Keywords: *TPACK; professional development; novice teachers; experienced teachers; the influence of TPACK*

INTRODUCTION

Teacher professionalism in teaching and gaining knowledge could be very vital to be carried out to assist and educate college students to stage up. Teacher talented gaining knowledge of is increasing sales as one manner of helping the more complicated abilities college students want to gather in anticipation of extra instruction and work with inside the twenty-first century. Refined sorts of educating are anticipated to foster student capabilities just like the profound authority of trying out content, primary reasoning, complicated crucial thinking, powerful verbal exchange and collaboration, and self-direction. Thusly, a successful professional flip of events (PD) is anticipated to help teachers with gaining knowledge of and refine the academic techniques wanted to reveal those capabilities (Darling, Hyler & Gardner, 2017).

Currently, the use of technologies in schools is essential. Currently, blended learning is used in Indonesia, which requires students and teachers to communicate via social media. As was the case with SMP students in Karanglewas. Students arrive at school in turn according to the schedule, and when they study at home, the teacher must deliver materials or tasks via social media. According to Nazari et al. (2019), educators

must gain access to technology and knowledge to become more established, general, applicable in the curriculum, and pedagogically practical. The employment of technology in teacher professional development is also a highlight. Teaching in schools needs the use of adequate technology. Today, both teachers and students must be able to use technology. It can be useful in teacher administration or in the classroom itself.

Through the gathering of educators' lesson plans and observations, additional research can be conducted to highlight variations in the implementation of the TPACK aspect of EFL teachers. Furthermore, more research might be conducted on EFL teacher educators to examine their TPACK levels (Nazari, N et al., 2019). However, as Misra (2018) points out, Massive Open Online Courses (MOOCs) for Teacher Professional Development (TPD) activity is an effort in this way. Regions, institutions, and groups are expected to take note and follow the recommended activities to enable the systematic and successful use of MOOCs to support teachers in being highly qualified and academically relevant on a continuing process.

The purpose of this study is to look at the differences between novice and experienced Junior High School Karang Lewas teachers' TPACK, as well as the impacts on professional development and actions inspired by TPACK. The Technological Pedagogical Content Knowledge (TPACK) framework was developed to explain how new and experienced instructors can study to implement technology better efficiently to assist to their professional development, which contributes to learning outcomes. For this study, the following research questions were posed:

1. What are novice and experienced teachers' perceptions of TPACK?
2. To what extent have their actions been inspired by TPACK?

LITERATURE REVIEW

TPACK

Developments in educators and teacher quality trainers must control not only pedagogical content and information but also the junction of the two: pedagogical content knowledge (PCK) (Shulman, 1986). The technological pedagogical content knowledge framework (TPACK) is a theory designed to

clarify instructors' ability to integrate creativity into the academic program (Bostancolu and Handley, 2018). Mishra and Koehler established a system for teacher knowledge for innovation resolution in 2006. The fundamental tenet of their system is that teaching is a very complex action that relies on a wide range of data. In general, teacher education databases have only examined teacher information material.

Introduce a component of technological skills and propose that the combination of technological, pedagogical, and course material might provide multiple types of teacher knowledge (Mishra and Koehler, 2006). Technology content knowledge (TCK), pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), and technology pedagogical content knowledge are examples of integrated knowledge (TPACK). The TPACK framework includes these seven types of knowledge, as well as technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) (Koh, Chai, & Lee, 2015). Seven TPACK

constructs are listed below (Mishra & Koehler, 2006).

1. CK: Subject topic knowledge
2. PK: Understanding of learning strategies and approaches
3. Kindergarten: Understanding of technical tools
4. PCK: Understanding of how to use appropriate instructional tactics to teach topic matter.
5. TPK: Understanding of how to use technology to accomplish learning strategies
6. TCK: With technology, knowledge reflects topic matter.
7. TPACK: Knowledge promotes student learning of specific topics by utilizing appropriate pedagogy and technologies.

Teacher professional development

The phrase "professional learning" has been used in a variety of settings (Hartono, 2016). Professional development, according to Wong (2011), is "a lifetime undertaking, a manner of being, and a

viewpoint on how one acts as well as the performance itself" (p. 142). Diaz-Maggioli (2003) explains it as a continual learning cycle in which educators participate freely to explore how to best adjust their instruction to their learners' educational needs. Professional development is not a single event, but rather a dynamic process of awareness, appraisal, and professional development that produces the best results when ongoing in a community of practice and when focused on the task. accountability is ingrained. According to Guskey (2000), the phrase includes the processes, actions, and activities meant to improve teachers' knowledge, abilities, and professional views so that they might contribute to student accomplishment.

Teacher training and professional development projects kick-start the educator (student) process of learning, which leads to teacher learning goals. Teachers who use knowledge, practice, and so on in their teaching represent a crucial component of the learning context for students, along with learning

resources, physical surroundings, other students, and so on (Krolak-Schwerdt, Glock, & Bohmer, 2014). Professional development is essential in ensuring educators stay up to date on modifications in comprehensive student achievement standards, gain knowledge of different teaching strategies in subject areas, take a lesson on how to best to utilize innovative teaching technologies for education and learning and modify their classroom instruction to the modifying school environment (Lawless & Pellegrino, 2007).

Digital learning tools

According to Sousa et al. (2017), online cooperative learning provides a modern learning method with a framework that accounts for the Internet's universality and society's trend toward cooperative learning. It emphasizes intellectual progress rather than traditional teaching methods. His approach is called Online Collaborative Learning (OCL), and it describes a teaching strategy in which students are actively encouraged to collaborate to gain knowledge. To find, investigate new

ways to improve, and thus try to understand, rather than delivering literature assertions, encourages the creation of sharp answers. As an alternative technique that blends personal decisions and group decisions to accomplish a result, students are encouraged to work collaboratively through this method of instruction.

The constructivist framework method highlights the importance of educators in the OCL educational process. The preceding stimulates the intrinsic inclination of students' consciousness through real-world experiences, as well as interest and conversation, which supports their autonomy. Similarly, the phrase participatory pedagogy refers to an educational paradigm change that integrates teaching with online and connected learning. The above-mentioned outcomes culminate in the enhancement of student participation and their eagerness to focus on enhancing theoretical knowledge acquisition.

Tutoring and online learning both allow for and necessitate changes to traditional teaching methods, as well

as the search for new ways to adapt to the shift in the teacher's role in traditional learning and her function in online learning contexts. E-learning differs from traditional education in several areas, including facilitator and learner roles, communication models, connections, and learning mobility (Moghavvemi et al, 2017).

An examination of the professional literature in the field (Davidovitch et al., 2017) reveals the following important traits anticipated of the instructor in digital educational experiences:

- Holding a discourse with three components: intellectual interaction, cooperative interaction, and interpersonal communication. These relationships are influenced by the mentor-management. facilitator's

- Active creation of knowledge, in which the teacher's function shifts from knowledge transfer to mentor, advisor, and teammate, accompanying and directing the student, assisting her, and enabling her to develop knowledge. Students require active assistance from the

instructor rather than passive instruction for this objective.

- Recognizing and taking into account each student's unique learning needs. Students' demands, learning strategies, and quality preferences vary. As a result, high-quality e-learning should also be tailored to each student's specific requirements. That is no longer possible to fulfil everyone with a broad model; instead, the teacher must give personalized learning services that support every child's subjective choice profile.

- Creating social learning opportunities and increasing interaction in the classroom. There is a focus on the lecturer's need to strengthen communication abilities with learners to promote a learning community. Responding quickly to learners' queries boosts their confidence and willingness to study.

METHODOLOGY

A. Respondents and research setting

This study will use a qualitative method consisting of 16 junior high school teachers from various subjects. All the teachers come from Junior High

School Karanglewas, Banyumas. They are all novice and experienced teachers. The criteria used are for teachers who have taught less than 4 years and for teachers who have teaching experience for more than 8 years. The age range of participants is between 23-55 years old. The researcher made a research request letter to the principal and distributed a questionnaire to one of the teachers and asked for help to distribute it to other teachers who were willing. Next, the researcher will look at the learning design and make observations. After that, 5 teachers were selected based on purposive sampling for interviews.

B. Research instruments

To study the replies to the qualitative research subject, a demographics questionnaire, as well as a close-ended questionnaire on the variable of TPACK for the EFL environment, were used. To provide a comprehensive understanding of the instrument and what it measures, the following table displays the characteristics of the instrument used in this study and what it measures: A 15-item questionnaire was distributed to the individuals to measure TPACK.

The TPACK-EFL survey examines all of the TPACK categories and themes. A is a nine-point scale that ranges from "nothing/none" (1) to "very little" (2) to "some" (3) to "quite a bit" (4) to "a lot" (5). Even though earlier TPACK surveys used a five-point scale, a nine-point scale can help increase the accuracy of pre-service teachers' self-evaluations (Baser et al., 2016). Researchers chose this because qualitative research can also use quantitative methods to answer some specific questions such as the process of combining quantitative research into qualitative research but still in qualitative research (Morse, 1991a). In this particular case, the main characteristic of a qualitative sample is that it has a small number of participants and is selected for a specific purpose (Denzin & Lincoln, 2009).

To select volunteer respondents for the interviewing process, a question was added to the survey questionnaire, asking teachers with a variety of subjects who have more than five years' experience and are interested in interviewing to leave their contact information so that a time for the

interview can be scheduled. Purposive sampling resulted in 5 people attending the interview as opposed to 16 for a closed-ended inquiry. The subjects of the interviews centred on teachers' opinions of TPACK and its components, as well as teachers' professional development. It was a structured interview with items created by the researchers and checked and revised by three education professionals. The interviewer scheduled a time that was convenient for each interviewee to conduct the face-to-face interview through WhatsApp. Each interview lasted between 20 and 25 minutes.

c. Data collection procedure

The researcher shared the Google Form link with the teachers so they could fill it out without having to meet face to face. Before beginning the interview, the researcher explained the goal of the question-and-answer session and then began asking questions in order. Finally, the researcher transcribed all interviews for data analysis.

To answer the research questions, the researcher conducted a structured interview with three teachers from the English, Muslim religion, and social subjects. The first stage was to pick all of the volunteer teachers who matched the purposive sample requirements. The researcher contacted all of them via WhatsApp personal chat at the start of the interview. The volunteer teacher then agrees to interview internet media. To obtain more full and consistent data, the researcher chose to use a Google Form and a WhatsApp conversation. The google form emphasized that to avoid bias, this interview did not provide too much information about the study. On the day of the interview, the researcher distributed and contacted the teachers to complete the questionnaire. The interviews were done in such a way that legitimate and understandable responses were obtained.

The researcher explored novice and experienced teachers' conceptions of their TPACK, including the usage of a created idea by novice and experienced educators regarding the creation of their TPACK conceptions to stimulate professional development. The written data were evaluated, and the results were used to determine the relevant patterns and classes.

FINDINGS AND DISCUSSION

Table 1 contains TPACK classification questions and issues on beginner teachers' perceptions of their TPACK about the first

qualitative study question, which focuses on exploring novice and experienced EFL instructors' perspectives of their TPACK.

Table 1 shows the TPACK category items and themes based on novice instructors' opinions of their TPACK.

Items	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal
	1	2	3	4	5
(1) I can correctly use basic technological phrases such as operating system, WiFi connection, memory management, and so on.	-	-	2 (25%)	3 (37.5%)	3 (37.5%)
(2) I can change configuration settings such as downloading apps and connecting to the Internet.	-	-	2 (25%)	4 (50%)	2 (25%)
(3) I am capable of using computer accessories such as a printer, headphones, and a scanner.	-	-	-	4 (50%)	4 (50%)
(4) I can fix ordinary computer issues (for example, printer troubles, Internet access problems, and so on) on my own.	-	-	2 (25%)	3 (37.5%)	3 (37.5%)
(5) I can use new classroom technology like projectors and interactive whiteboards.	-	-	-	4 (50%)	4 (50%)
(6) I am proficient in using Office programs (such as Word, PowerPoint, and others).	-	-	2 (25%)	2 (25%)	4 (50%)
(7) I can produce multimedia (for example, video, web pages) by combining text, images, sound, recordings, and animations.	-	-	-	4 (50%)	4 (50%)
(8) Following my aims, I can employ collaboration technologies (wiki, Edmodo, 3D virtual worlds, and so on).	-	-	2 (25%)	3 (37.5%)	3 (37.5%)
(9) I can study software that will assist me in performing a range of activities more successfully.	-	-	1 (12.5%)	4 (50%)	3 (37.5%)

(10) Texts written in English are understandable to me.	-	-	2 (25%)	3 (37.5%)	3 (37.5%)
(11) I am capable of employing proper teaching methods and approaches in a learning setting.	-	-	3 (37.5%)	3 (37.5%)	2 (25%)
(12) I can design a learning experience that is appropriate for the level of students.	-	-	3 (37.5%)	2 (25%)	3 (37.5%)
(13) I can support students' learning by their physical, mental, emotional, social, and cultural differences.	-	-	2 (25%)	4 (50%)	2 (25%)
(14) I can collaborate with school stakeholders (students, parents, teachers, etc.) to support students' learning.	-	-	2 (25%)	4 (50%)	2 (25%)
(15) I can reflect on the experiences that I gain from professional development programs to my teaching process.	-	-	3 (37.5%)	3 (37.5%)	2 (25%)
(16) I can support students' out-of-class work to facilitate their self-regulated learning.	-	-	2 (25%)	4 (50%)	2 (25%)
(17) I use Google Meeting, Zoom Meeting or another online meeting application to teach students.	-	-	-	5 (62.5%)	3 (37.5%)
(18) I use gamification (Quiziz, Duolingo, etc) to make the students interested.	-	-	1 (12.5%)	4 (50%)	3 (37.5%)
(19) I use mind maps online or digital to make the materials easy to learn.	-	-	2 (25%)	4 (50%)	2 (25%)
(20) I can help my professional development by employing technology resources and tools to better the classroom instruction regularly.	-	-	1 (12.5%)	5 (62.5%)	2 (25%)
(21) I can support students as they use technology such as virtual discussion platforms to develop their higher-order thinking skills.	-	-	2 (25%)	3 (37.5%)	3 (37.5%)

Table 2 presents TPACK category issues and questions based on experienced instructors' opinions of their TPACK.

Items	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal
	1	2	3	4	5
(1) I can correctly use basic technological phrases such as operating system, WiFi connection, memory management, and so on.	-	-	5 (62.5%)	2 (25%)	1 (12.5%)
(2) I can change configuration settings such as downloading apps and connecting to the Internet.	-	2 (25%)	3 (37.5%)	2 (25%)	1 (12.5%)
(3) I am capable of using computer accessories such as a printer, headphones, and a scanner.	-	1 (12.5%)	-	4 (50%)	3 (37.5%)
(4) I can fix ordinary computer issues (for example, printer troubles, Internet access problems, and so on) on my own.	-	3 (37.5%)	2 (25%)	2 (25%)	1 (12.5%)
(5) I can use new classroom technology like projectors and interactive whiteboards.	-	1 (12.5%)	2 (25%)	2 (25%)	3 (37.5%)
(6) I am proficient in using Office programs (such as Word, PowerPoint, and others).	-	1 (12.5%)	1 (12.5%)	4 (50%)	2 (25%)
(7) I can produce multimedia (for example, video, web pages) by combining text, images, sound, recordings, and animations.	-	1 (12.5%)	2 (25%)	2 (25%)	3 (37.5%)
(8) Following my aims, I can employ collaboration technologies (wiki, Edmodo, 3D virtual worlds, and so on).	-	1 (12.5%)	4 (50%)	2 (25%)	1 (12.5%)
(9) I can study software that will assist me in performing a range of activities more successfully.	-	1 (12.5%)	3 (37.5%)	2 (25%)	2 (25%)

(10) Texts written in English are understandable to me.	-	2 (25%)	4 (50%)	1 (12.5%)	1 (12.5%)
(11) I am capable of employing proper teaching methods and approaches in a learning setting.	-	1 (6.7%)	6 (40%)	4 (26.7%)	4 (26.7%)
(12) I can design a learning experience that is appropriate for the level of students.	-	-	7 (46.7%)	6 (40%)	2 (13.3%)
(13) Because of their physical, mental, emotional, social, and differences in culture, I can help pupils learn.	-	2 (13.3%)	5 (33.3%)	4 (26.7%)	4 (26.7%)
(14) I can help students learn because of their physical, mental, emotional, social, and cultural differences.	-	-	3 (20%)	7 (46.7%)	5 (33.3%)
(15) I can apply what I learn from professional development classes to my teaching approach.	-	-	6 (40%)	6 (40%)	3 (20%)
(16) I can support students' out-of-class work to facilitate their self-regulated learning.	-	2 (13.3%)	6 (40%)	5 (33.3%)	2 (13.3%)
(17) I use Google Meeting, Zoom Meeting or another online meeting application to teach students.	2 (13.3%)	2 (13.3%)	6 (40%)	3 (20%)	2 (13.3%)
(18) I use gamification (Quizziz, Duolingo, etc) to make the students interested.	2 (13.3%)	6 (40%)	4 (26.7%)	2 (13.3%)	1 (6.7%)
(19) I use mind maps online or digital to make the materials easy to learn.	2 (13.3%)	3 (20%)	5 (33.3%)	5 (33.3%)	-
(20) I can help my professional development by employing technology resources and tools to better the classroom instruction regularly.	-	-	7 (46.7%)	6 (40%)	2 (13.3%)
(21) I can support students as they use technology such as virtual discussion platforms to develop their higher-order thinking skills.	2 (13.3%)	1 (6.7%)	4 (26.7%)	6 (40%)	2 (13.3%)

Table 3. Experienced and novice teachers' perceptions of TPACK components

TPACK Components	Perceptions of TPACK components among experienced and beginner teachers
PK	<p>The art of teaching.</p> <p>Teaching skills.</p> <p>Manage the learning process.</p> <p>Skills to be a teacher.</p> <p>The art of being a teacher is aimed at strategies or learning styles.</p>
CK	<p>The type of knowledge (cognitive) required for the subject matter includes facts, concepts, procedures and principles, while the type of skill (psychomotor) includes intellectual skills and physical skills, while the type of attitude (affective) includes responding, receiving grades. , internalization and others related to attitudes or values or circumstances in a person.</p>
TK	<p>Help improve learning and teaching activities in the classroom.</p> <p>Facilitate the learning process.</p> <p>Provide a different and varied learning experience to attract students' interest in learning.</p> <p>Creating fun and effective learning situation.</p> <p>Provide learning motivation.</p> <p>They can keep up with technological developments by following information on technologies that are developing in the community, finding out more details about these technologies, it can be done through internet browsing, asking friends who are more understanding in the IT field or these technologies and direct practice with these technologies. After finding out in detail about the technology, it will not be optimal if we don't carry out the direct practice, the goal is to measure the extent of our understanding of the technology.</p>

	Some of the types of technology that can be used at certain times and as needed, such as Audio and Video, laptops/computers, cellphones and whiteboards.
TPK	Teachers can prepare students for the effective use of technology by considering the suitability of the subject matter, affordability of funding, the availability of the technology and the ease of use of the technology. Along with the times, the learning process that involves the activeness of students in the learning process is very important, for example starting from introductions between students, then forming groups, giving learning assignments (introduction of tasks, objectives, instructions, benefits), assessing and evaluating.
TCK	Support student learning at home by utilizing information technology and distance learning applications.
TPACK	By implementing integrated learning, namely from the process of planning the implementation of learning and evaluation using technology that has been mastered by students and teachers from novice and experienced. Knowledge of how to facilitate student learning through pedagogic and technological approaches.

Based on the academic background of several teachers, many of them have the spirit to become an educator. The following quote is taken from one of the teachers who was interviewed about his academic background:

Becoming a teacher is an opportunity as well as a challenge in contributing to support student development. In the world of education, 'character

education' has a very important role, because it is implemented in every norm. One of the norms that also plays an important role is religious norms. Because this norm also teaches how to live appropriately in the environment. Especially, in this case, it fits my academic background, namely PAI (Pendidikan Agama Islam), which not

only acts as a transmitter of knowledge but is also responsible for the personality development of students.

There are also those whose background is not a graduate of teacher education but has been teaching for a long time in an English course, as explained by one of the respondents below:

My teaching experience started from teaching an English course and continued teaching at Muhammadiyah University, Purwokerto for 4 years. After that, I had the opportunity to be a teacher at SMAN 1 Kutasari for 2 years. After that, I taught SMPN 2 Karanglewas until now. My academic background is graduate-level S-1 at UMP and S-2 at UNS majoring in English education.

On how teachers develop TPACK for their professional development with a focus on pedagogical knowledge, the following excerpts from the interview transcripts of respondents:

Keywords that can define pedagogy are teaching skills and managing the learning process as well as the art of teaching.

Another respondent also said:

The art of being a teacher refers to strategies or learning styles that are appropriate for students or in each class that has different characteristics.

Concerning the second qualitative study question, which focuses on how far their activities have been influenced by TPACK. Beginner EFL teachers put in a lot of time and effort to expand their technology skills for professional development. Hervey (2015) discovered that because they were born in the digital era, beginner teachers are more likely to take chances when adopting technology in classrooms. They don't, however, understand how to design their pedagogical content knowledge for professional development since they are regarded as beginners (Nazari et al, 2019). The following excerpt is in one of the novice participants transcribed about the use of technology:

The students can keep up with technological developments by following information on technologies that are developing in the community, finding out more details about these technologies, it can be done through internet browsing, asking friends who are more understanding in the IT field

or these technologies and direct practice with these technologies.

The finding of joining an online Personal Development community is by the statement of Lloyd and Duncan-Howell (2010) that affiliated to an online Technology of Personal Development community does create opportunities for teachers and students to share experiences, connect with larger peer groups, and collaborate.

Another respondent said the following:

Along with the times, the learning process that involves the activeness of students in the learning process is very important, for example starting from introductions between students, then forming groups, giving learning assignments (introduction of tasks, objectives, instructions, benefits), assessing and evaluating.

As seen by the following results of the interview, professional instructors learn how to develop their pedagogical and content knowledge for professional development. However, in terms of technical understanding, they must attend professional development courses targeted to their objectives for technology integration, such as Education Office training or technology workshop activities. This is consistent with

the findings of Hervey (2015), who discovered that because novice teachers have extensive knowledge of technology and have to expand their pedagogical and content knowledge, and experienced teachers have limited knowledge of technology but are experts in their pedagogical and content knowledge, possibilities in both novice and experienced teachers to start taking customizable training courses and collaborate on different aspects of TPACK should be provided.

Based on one of the interviewees:

By implementing integrated learning, namely from the process of planning the implementation of learning and evaluation using technology that has been mastered by students and teachers from novice up to experienced.

More professional development courses are needed for teachers to generate TPACK constructs similar to those demonstrated in this research. This is consistent with Martin's (2018) opinion, according to which faculty require additional professional development to improve their TPACK incorporation practice. The results of joining a collaborative network for integrating technology are consistent with Glazer, Hannafin, and Song (2005) and

Gómez (2016), who indicate the value of a community of inquiry for supporting teacher use of technology for pedagogy. Overall, this study accomplishes its aims. It aims to add to the huge literature by investigating the differences between beginner and experienced instructors who have experienced TPACK and how they use TPACK with their learning medium to promote their professional growth.

As we can see from the results of the close-ended questionnaire described above, there are clear differences regarding the application of technology, the pedagogy applied and the combination of the two. It can be seen that novice teachers are more fluent in using technology, applying it in teaching and learning activities and they can access technology or learning platforms easily while applying pedagogy, they have to learn a lot or have to often apply it in school activities. Then, experienced teachers, better master the pedagogy in school and its application in daily activities, whereas when they use technology in teaching and learning activities they find it difficult. They are not fluent in repairing laptops or just installing hardware that is easy to implement. In addition, using a learning platform also requires assistance from younger people. From these two differences, it is clear that novice teachers

and experienced teachers have different perspectives on learning and technology.

CONCLUSION AND RECOMMENDATION

The conclusion that can be drawn in this study is that every teacher needs technology for learning today. To answer the first research question about teachers' perceptions of TPACK, the teacher understands the role of TPACK in teaching and learning. This is evidenced by the many benefits obtained from TPACK besides that they also have to practice a lot in using the technology itself for experienced teachers and for novice teachers who need professional development in teaching. However, there is not much difference in the use of technology between novice and experienced teachers at this school. Then, the second question is about the various technologies used by teachers. They use technology a lot in teaching such as Google Classroom, Google Meetings, Zoom Meetings and other popular learning platforms. From this, it can be seen that teachers have started to use technology well even though they still need help from other parties. However, for novice teachers, it seems that the use of technology is better because it is already equipped with learning technology at the time of teaching school.

According to the current conditions, the limitation that can be drawn from this study is that researchers have difficulty meeting teachers directly because they are constrained by distance and time at school. Then, some teachers do not communicate well or do not confirm beforehand for the time of the interview, so they need a substitute teacher. For further researchers, they can directly jump into the field to see the activities of teachers in using technology so that they can determine the right time with the teacher concerned.

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