EFL Teachers' Technological Pedagogical Content Knowledge (TPACK): Urban and Suburban Schools in East Java

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Abstract. The advancement of technology encourages teachers to not only have great pedagogical and content knowledge but also technological knowledge to improve their teaching. In this study, the researcher aimed to measure both urban and suburban teachers' TPACK levels, as well as the teaching activities they implemented. The researcher distributed a questionnaire and interviewed to collect the data. The findings indicated that there was no significant difference between urban and suburban teachers. On a 4-point scale, the total average scores were 3.3 for suburban teachers and 3.5 for urban teachers. The lowest score was 2.75 gained by suburban teachers in three items including monitoring their writing for accuracy, monitoring their speech for accuracy, and selecting authentic English language resources to suit students' needs. They provided different kinds of activities namely reading kinds of texts and stories followed by exercises, for example, fill in the blanks, question, and answer sessions, listening to audio, song, or video followed by retelling or doing exercises, and writing stories. All in all, teachers' TPACK were already great but on several points, they need to improve so that the teaching-learning process offers equal aspects.

Keywords: TPACK, Urban Teacher, and Suburban Teacher.

1. INTRODUCTION

The demand for technology in the teaching-learning process has increased as a result of the development of information, communication, and technology (ICT), and technology-integrated learning has also grown (Joo, et al., 2018). Teachers, who are the agents of education, must encourage the rapid integration of technology into the classroom (Rachmawati & Purwati, 2021). Students may effortlessly learn anywhere, at any time, due to technological advances. Applications of technology that allow students to study independently even outside of the classroom include a number of factors, such as learning motivation, self-assurance, metacognitive awareness, and social skills (Warni, et al., 2018). Teachers must, therefore, be prepared for any issues that arise from technology-integrated education and maintain strong pedagogical and topic understanding (Joo, et al., 2018). Technology in education helps with planning, the teaching-learning process, and assessment, especially from the perspective of independent learning in the 4.0 era (Millati, 2021). There is constant pressure on teachers to advance both pedagogically and technologically (Rahimi & Pourshahbaz, 2019).

The 21st-century skills, which include ICT literacy as one of the domains, serve as evidence of the significance of technology integration in the teaching-learning process (Septiani, et al., 2020)). According to the regulation of the Ministry of Education and Culture no. 45/2015, ICT integration into education promotes: 1) the continuity of learning, teachers should encourage students to find, use, store, present, and exchange facts and information, 2) students' self-esteem development following their own needs, potentials, abilities, interests, and traits, 3) teachers to utilize in developing instructional media and resources, organizing lessons, teaching and assessing (Lubis, 2018). ICT makes it easier for teachers to communicate with students and deliver lessons remotely. In considering the current pandemic COVID-19, all fields, including education, must now perform digitally. Thus, technology acted as the primary media to help teachers and students communicate, exchange information, as well as teach and learn. Despite the positive view of the ICT framework, it continues to emphasize more on the technical material more than the students' functional and communicative skills (Lubis, 2018). However, a study conducted in Vietnam also found that the application of ICT is still limited as a result of unequal access, technical infrastructure, and teachers' technological expertise (Le & Song, 2018). Then, to incorporate 21st-century skills into their lessons, teachers must think about how to include ICT in terms of advancing both content and pedagogical knowledge (Aisyah, 2022).

The term TPACK, Technology Pedagogical Content Knowledge, refers to a theory developed to assess the technology literacy of instructors in the curriculum (Bostancolu & Handley, 2018, p. 3). The TPACK framework is where teachers integrate ICT into the classroom. 2020, p. 166; Septiyani et al. Mishra and Koehler (2006) discussed a technological, pedagogical, and content knowledge (TPACK) framework for educators that was derived from Shulman's (1986) pedagogical content knowledge (PCK) paradigm. This framework is related to the use of technology in the teaching-learning process. The following seven domains are included in the TPACK framework.

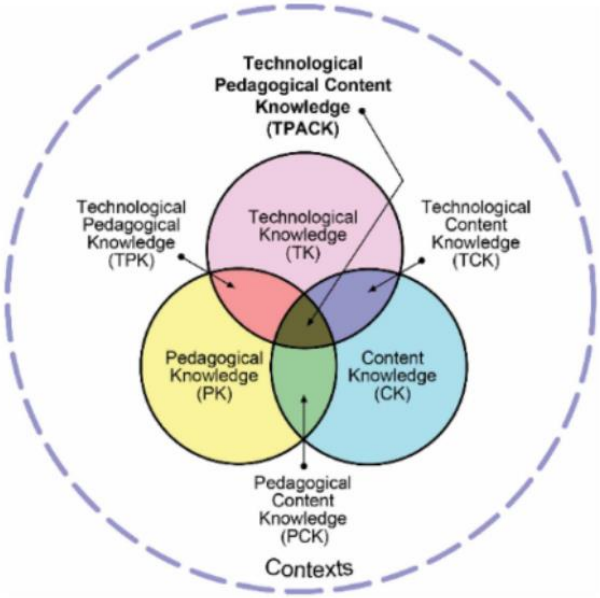

Figure 1. The TPACK framework and its knowledge categories (Koehler & Mishra, 2009)

Technological Knowledge is related to the technology integration skills of EFL teachers. While PK is EFL teachers' knowledge of the strategies and procedures used in teaching. Then, teachers' understanding of the English language's subject matter, including listening, speaking, writing, speaking, grammar, and vocabulary is referred to as their Content Knowledge (Tseng, et al., 2018). It is crucial to include instructors' expertise in the TPACK framework, where teachers should keep their knowledge and pedagogy while acquiring technology (Rahimi & Pourshahbaz, 2019). This demonstrates the challenges of continual teaching and the necessity of technology expertise (Koehler & Mishra, 2009).

The researcher in this present study focused on measuring the EFL Teachers' TPACK in East Java and then comparing those teaching in urban and suburban areas. The study by Lubis in 2018 indicated that teachers prioritized students' technical knowledge over their communicative and functional abilities. Aniq and Drajati 2019 examined the seven areas of TPACK. The results demonstrated that EFL teachers gave greater attention to CK, PK, and PCK than to technological knowledge domains. This indicates that educators placed a focus on conventionally used teaching methods and resources. Both of the occurrences were inverted. However, based on the study conducted by Yatun, et al, (2021) the teachers' TPACK exceeded 50% of the standard. It demonstrated that teachers are excellent enough to take into account TPACK integration in teaching. Yatun also stated that having a great understanding of TPACK enables instructors to deliver effective technology-integrated instruction. Furthermore, blended learning is needed nowadays since the pandemic covid-19 attacked. Aisyah, et al., (2021) examined a teacher's TPACK in applying Telegram Bot in his teaching. The results demonstrated that the four TPACK theory components-shifting, applying, representing, and modeling-were covered. This indicates that the teacher's application to teach through Telegram Bot was successful.

Previous studies have also been conducted to measure the EFL TPACK level. Using the TPACK framework, Alharbi (2020) evaluated the level of EFL teaching expertise in Madinah. According to the study, there is no statistically significant variation in TPACK levels between teachers based on the teachers' experiences. While based on gender and stage-related disparities in instructors' TPACK levels were shown to be significant. It was interesting to discover that male instructors outperformed female ones in terms of content knowledge (CK), while female teachers outperformed male ones in terms of technology knowledge (TK) and pedagogical knowledge (PK). Another study was conducted by Ergen, Yelken, and Kanadli (2019) to assess the TPACK degree in gender. The results demonstrated that TK, TPK, and TPACK have a significant effect size on males. However, CK, PCK, and TCK had no discernible impact on males. Also, the effect size on males is insignificant. Despite several previous research being done to investigate related topics, no one has compared the TPACK of EFL teachers in urban and suburban schools, particularly in East Java Indonesia. The research questions were then formulated into:

1. How is the EFL Teachers' TPACK level between Urban and Suburban Schools?
2. What are the teaching activities implemented by EFL teachers in East Java?

To answer the 1st research question, the researcher utilized the TPACK Framework (Koehler & Mishra, 2009). Then, the teachers' TPACK level was examined through a questionnaire. It was, next, continued with an interview to answer the 2nd question and to analyze the result validation of the questionnaire. The finding of this present study hopefully can be useful for the teachers to evaluate and improve their knowledge of teaching.

2. METHOD

Utilizing qualitative research design, the researcher descriptively served the data. Creswell (2012) stated that descriptive qualitative facilitates in-depth explorations so that the researcher may investigate detailed information dealing with certain phenomena. This is in line with the present study exploring the comparison of the TPACK level between the teachers in urban schools and suburban schools.

Distributing an electronic questionnaire adapted from Rasyidah Nur Aisyah (2021), the researcher classified the items into seven domains to answer the first question. The questionnaire is a 4-point Likert-type questionnaire, namely 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. It consisted of 67 items including 13 items for Technological Knowledge (TK), 16 items for Pedagogical Knowledge (PK), 8 items for Content Knowledge (CK), 9 items for Technological Content Knowledge (TCK), 9 items for Pedagogical Content Knowledge (PCK), 7 items for Technological Pedagogical Knowledge (TPK), and 5 items for Technological Pedagogical Knowledge (TPACK). The researcher served it into an electronic questionnaire using *google forms* so it can reach teachers who are at a distance. The questionnaire consists of several sections. The first section asks about teachers' demographic information, then followed by statements measuring TPACK.

The researcher distributed the link to *google forms* through social media, such as *Instagram* and *WhatsApp*. Thus, respondents were picked based on their willingness and availability to take part in the study. The participants of this study came from several cities in East Java in which some of which are from urban schools and others from suburban schools as shown in the following chart.

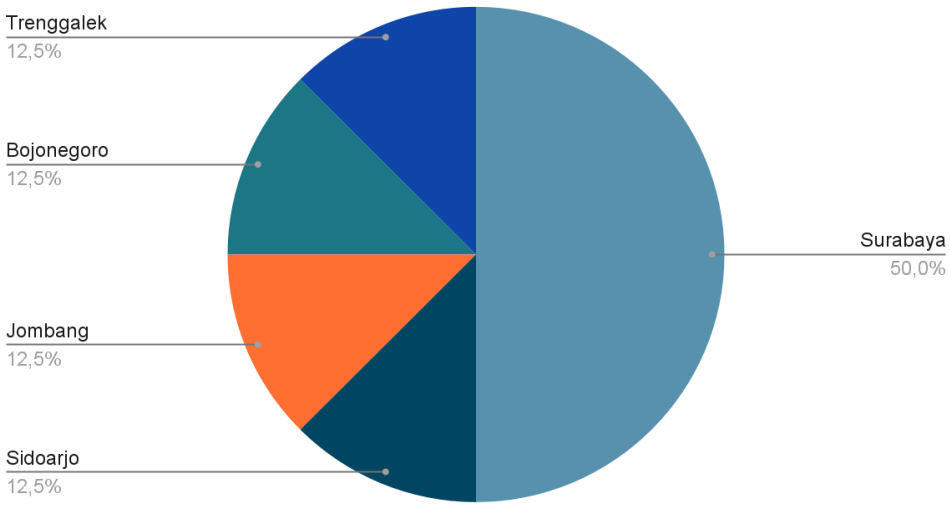

Figure 2. The participants of the study

While answering the second research question, the researcher interviewed the representative teacher from urban and suburban schools. The researcher arranged semi-structured interviews dealing with the teaching activities implemented. It can also allow the researcher to ensure the data from the questionnaire is called triangulation.

The researcher offered nine questions in the interview dealing with activities that are commonly conducted to teach listening, speaking, reading, and writing, instructional media used in teaching listening, speaking, reading, and writing, as well as technologies used in creating the instructional media.

3. RESULT

The questionnaires were filled up by teachers with different geographical data. Using *google forms*, 25% of the respondents were males, and 75 % were females. Then, 50% of them were from suburban schools and the other 50% came from urban schools. Dealing with age, 75% of teachers were 21-29 years old, and others were 30-50 years old. Lastly, 62,5% of the teachers taught in Senior High Schools, and others taught in Junior High Schools.

3.1 EFL Teachers' TPACK level between Urban and Suburban Schools

Table 1. The comparison of the results

FRAMEWORK	Suburban	Urban
Technological Knowledge (TK)	3.6	3.5
Pedagogical Knowledge (PK)	3.6	3.6
Content Knowledge (CK)	3.2	3.5
Technological Content Knowledge (TCK)	3.3	3.6
Pedagogical Content Knowledge (PCK)	3.1	3.4
Technological Pedagogical Knowledge (TPK)	3.2	3.6
Technological Pedagogical Content Knowledge (TPACK)	3.1	3.4

The table above showed that the degree of teachers' TPACK between those in urban and rural schools is not significantly different. Urban teachers got higher points than suburban teachers, in terms of CK, TCK, PCK, TPK, and TPACK. While the teachers in suburban schools had higher scores in terms of TK than the urban teachers. Furthermore, the average score of their PK is the same as the total point of 3.6. The finding of this study supported Alharbi's study (2020) that the teachers' PK was higher than their CK. However, those findings corroborated the study of Alnajjar & Al-Jamal (2019) that teachers lacked Pedagogical Knowledge (PK).

Table 2. The comparison of the teachers' TK

	Technological Knowledge Items	Suburban	Urban
1	I am easily able to acquire skills in technology.	3.5	3.75
2	I am knowledgeable in computer-mediated communication (CMC) methods (e.g. email)	4	3.75
3	I'm excellent with multi-media (e.g. graphics, texts, audio, and video)	4	3.75
4	I am proficient in using online learning platforms (e.g. *google classroom*, and *moodle*)	3	3.25
5	I am knowledgeable about using online dictionaries.	3.75	3.75
6	I am experienced with web 2.0 technology (e.g. blogs, social networks, and wikis)	3.5	3.5
7	I am familiar with the basic elements and the functions of computer hardware, such as *RAM, a motherboard, and a CD-ROM*.	3	3
8	I am familiar with how to save data to and from digital devices (i.e. flash disk, USB stick, CD)	4	3.75
9	I am capable with common office programs (i.e. *Word, PowerPoint, Excel*)	4	3.75
10	I am proficient at using the computer to play music and video files.	3	3
11	I am proficient at recording both audio and video files (i.e. using Dictaphone and video camera)	3.75	3.75
12	I am capable of producing images with my computer (i.e. *Windows Paint*)	3.5	3.25
13	I am adept at utilizing my computer to edit pictures (i.e. *Photoshop*)	3.25	3.5

From the table above, we can see that both urban and suburban teachers had the lowest scores in items number 7 and 10 which are 3. It means that they have a lack of knowledge in terms of playing audio, and video files on computers, as well as computer hardware. Additionally, related to the use of online dictionaries, web 2.0 technologies, and recording audio and video files, suburban teachers have the same abilities as urban teachers. Furthermore, suburban teachers got 3 in online learning environments known as Learning Management Systems (LMS).

Suburban teachers got perfect scores higher than urban teachers, that is 4, in numbers 2, 3, 8, and 9. Those items discussed computer-mediated communication (CMC) technologies including *email*, and chat, as well as multimedia including graphics and texts, saving data into/from a digital device (i.e. *flash disk*), as well as common office programs (i.e. Word, *PowerPoint*, Excel). On the other hand, Urban teachers got higher scores on items number 1, 4, and 13 about easiness in learning technology, online learning environments known as LMS (e.g. *moodle, blackboard),* and editing images in computers. But, for creating images on the computer, urban teachers knew better than suburban teachers.

Table 3. The comparison of the teachers' PK

	Pedagogical Knowledge Items	Suburban	Urban

14	I can manage my classroom well.	3.75	3.75
15	I may encourage learning by fostering a pleasant environment in which students are motivated to take risks.	3.5	3.5
16	I can respond positively to student contact.	3.75	3.75
17	I am capable of managing group, partner, individual, and entire class activities.	3.75	3.75
18	I am able of giving opportunities for a partner, group, individual, and entire class work.	3.75	3.75
19	I may modify my teaching techniques for various students.	3.75	3.75
20	I can modify my instruction depending on what students' difficulties.	3.75	3.75
21	In a classroom, I am capable of utilizing a variety of teaching strategies.	3.5	3.75
22	I can choose instructional resources based on the demands of my students.	3.5	3.5
23	I am acquainted with typical student comprehension and erroneous beliefs.	3.5	3.25
24	I have several methods for evaluating students' learning.	3.5	3.75
25	I can keep the class focused.	3.25	3.25
26	I can comprehend the demands of the curriculum.	3.5	3.5
27	I can manage the resource and organizational limitations existing at my institution.	3.25	3.25
28	I may build my teaching decisions on significant research findings.	3.25	3.25
29	By providing opportunities for solitary, collaborative, group, and whole-class activity, I can promote learning.	3.75	4

In pedagogical knowledge, teachers got insignificantly different scores, even though most of the items took the same scores. Urban teachers got the same scores as suburban ones, that is 3.75, in terms of managing the classroom well, responding positively to student contact, managing and giving opportunities to the group, partner, individual, and entire class activities, modifying the teaching techniques for various students, and modifying the instruction depending on what students' difficulties. Additionally, in encouraging learning by fostering a pleasant environment in which students are motivated to take risks, choosing instructional resources based on the demands of the students, and comprehending the demands of the curriculum, both urban and suburban teachers have the same score, which is 3.5. They also got the same score, that is 3.25, in keeping the class focused, managing the resource and organizational limitations existing at the institution, and building the teaching decisions on significant research findings.

Urban teachers got higher scores in assessing students' learning in multiple methods, utilizing a variety of teaching strategies, and promoting learning by creating opportunities for

solitary, collaborative, group, and whole-class activities. While dealing with typical student comprehension and erroneous beliefs, suburban teachers assumed that they knew more.

Table 4. The comparison of the teachers' CK

	Content Knowledge Items	Suburban	Urban
30	I can describe the grammatical structures of English.	3.5	3.75
31	I am aware of the distinctions between written and spoken English.	3.5	3.75
32	I can keep speaking English in class.	3.25	3.75
33	I have accurate comprehension of English writing.	3.5	3.5
34	I have accurate comprehension of English speech.	3	3.5
35	I can assess the accuracy of my writing.	2.75	3
36	I can assess the accuracy of my speech.	2.75	3.25
37	I am acquainted with the target language communities' culture(s).	3.25	3.25

Based on the table above, it can be seen that no teachers got perfect scores. It means that they were aware of their lack of knowledge dealing with content. The suburban teachers even got 2.75 in assessing their writing and speech for accuracy. Urban teachers got higher scores in almost all items in content knowledge, namely describing the grammatical structures of English, knowing the distinctions between written and spoken English, keeping to use of English in class, comprehending accurately English speech, as well as assessing their English writing and speech for accuracy. However, they got the same scores, that is 3.5 in comprehending accurately English text and 3.25 in knowing the target language communities' culture(s).

Table 5. The comparison of the teachers' TCK

	Technological Content Knowledge Items	Suburban	Urban
38	I am aware of technological tools I can utilize to instruct English listening.	3.5	3.75
39	I am aware of technological tools I can utilize to instruct English speaking.	3.25	3.75
40	I am aware of technological tools I can utilize to instruct English reading.	3.5	3.75
41	I am aware of technological tools I can utilize to instruct English writing.	3.5	3.5
42	I am aware of technological tools I can utilize to instruct English language grammar.	3.25	3.25
43	I am aware of technological tools I can utilize to instruct English vocabulary.	3.25	3.75
44	I am aware of technological tools I can utilize to instruct the pronunciation of English words.	3.5	3.75

45	I am aware of technological tools I can utilize to instruct the spelling of English words.	3.25	3.75
46	I am aware of technological tools I can utilize to instruct the complexities of cultural diversity.	3	3

In the table above, the technological and content knowledge of the teachers were connected. Based on the scores indicated, urban teachers knew more about the technology used for teaching listening, speaking, reading, vocabulary, pronunciation, and word spelling. While dealing with the knowledge of technologies used in teaching writing, grammar, and differences of cultures in English, urban teachers got lower scores than the previous skills (items) mentioned. Related to those three skills, the scores were the same as suburban teachers' scores.

Table 6. The comparison of the teachers' PCK

	Pedagogical Content Knowledge Items	**Suburban**	**Urban**
47	I can provide relevant feedback on language acquisition.	3.5	3.5
48	I am capable of speaking in the target language at a suitable level of difficulty.	3.25	3
49	To meet students' needs, I can choose appropriate authentic English language resources (e.g. magazines, newspapers)	2.75	3.5
50	I can choose exercises to raise the students' cross-cultural awareness.	3	3.25
51	I can select the most suitable method to instruct students (i.e. CLT)	3	3.5
52	I can prepare when and how I will utilize the target language, as well as any necessary metalanguage for the classroom.	3.25	3.5
53	I can recognize the difficulties that students have with linguistics (i.e. phonological, or grammatical problems)	3	3.25
54	I can create language lessons that conform to the curriculum's criteria.	3	3.5
55	I am aware of the contextual elements that might hinder or advance the teaching of English.	3	3.5

In pedagogical content knowledge, again urban teachers got higher scores in 8 of 9 items. Suburban teachers even got 2.75 in choosing the appropriate authentic English language resources to meet students' needs including newspapers, and magazines. On the other hand, in speaking in the target language at a suitable level of difficulty, suburban teachers gained higher scores than urban teachers.

Table 7. The comparison of the teachers' TPK

	Technological Pedagogical Knowledge Items	Suburban	Urban
56	I can assess the suitability of technology and teaching method.	3.25	3.5
57	I can select technologies to improve teaching methods and approaches.	3.25	3.75
58	I can create engaging learning opportunities for students.	3	3.75
59	I'm considering carefully how I can employ technology in my classroom.	3.25	3.5
60	I can modify the use of the technology I am learning for various instructional activities.	3.25	3.75
61	I can use technology to create engaging learning opportunities for students.	3.25	4
62	I can utilize digital tools and resources to involve students in solving real-world issues.	3.25	3.25

Related to technological pedagogical knowledge in the table above, urban teachers had higher scores in almost all items than suburban teachers. Urban teachers even obtained perfect scores, that was 4, in creating engaging learning opportunities for students using technology. Then, the lowest score (3) was from suburban teachers about creating engaging learning opportunities for students. Lastly, they got the same score, 3.25, in utilizing digital tools and resources to involve students in solving real-world issues.

Table 8. The comparison of the teachers' TPACK

	Technological Pedagogical Content Knowledge Items	Suburban	Urban
63	I am capable of creating classes that effectively integrate technologies, teaching methods, and English linguistic principles.	3	3.25
64	In my classroom, I can choose technology that will improve what I teach, how I teach it, and how students learn.	3	3.75
65	I can effectively apply technology to share pertinent information with students and peers.	3	3.75
66	I can utilize a variety of technologies to encourage participation from pupils.	3.25	3.25
67	I can make digital resources and tools for language learning accessible to everyone.	3.25	3

In the table above, teachers were measured dealing with how teachers served contents elaborated with the pedagogical and technological knowledge. In items number 63, 64, and 65, urban teachers got higher scores. While suburban teachers got higher scores than urban teachers in item number 67. Then, in item 66, both urban and suburban teachers got 3.25 which means the same.

3.2 Teaching Activities Implemented by EFL Teachers in East Java

Through an interview, the researcher found several activities implemented by EFL High School Teachers. The suburban stated that the speaking activities commonly conducted were dialogue, and telling daily life. While speaking activities commonly used by urban teachers are speaking in pairs with the topic they choose, and retelling a story or video. The finding of the study also strengthened Suban's study (2021) and Cunningsworth's (1994) that suggested dialogue and storytelling for speaking activities. Furthermore, the listening activities done by both suburban and urban teachers were followed by diverse exercises. The suburban teacher revealed that she provided listening to music, conversation or even the explanation for the teacher itself then completed with a question-and-answer session to check the students' understanding. While the urban teacher offered to listen to a monologue completed with fill-in-the-blank exercises. This study supported the previous study conducted by Fauzzana (2017) which assumed that listening activities may be followed by various exercises. The teachers added the media they used in teaching listening and speaking were audio, video (it can be *YouTube* video), song, dialogue, and pictures.

For reading activities, urban teachers offered several kinds of text based on the topic of their pupil books, or sometimes taken from the internet, followed by several questions based on the text. Also, suburban teachers mentioned several kinds of texts based on the topic of their books. Furthermore, in teaching writing the urban teacher said that she asked the students to write the text that implicitly taught grammar, for example, writing daily activities to teach present tense, or students' experience to teach past tense. On the other hand, the suburban teacher preferred to teach the pattern first and then ask students to write the text individually or in a group. This finding of the study again supported Cunningsworth's (1994) theory about reading and writing activities. In addition, the teachers revealed that they used *PowerPoint*, textbooks, announcements, pictures, pamphlets, and videos for teaching reading and writing.

4. CONCLUSION

TPACK is the framework that promotes teachers' technological, pedagogical, and content knowledge to improve their teaching. Based on the data, the finding indicated that the teachers from urban schools got higher total average scores of TPACK. From a 4-point Likert scale, suburban teachers obtained 3.6 for Technological Knowledge (TK), 3.2 for Content Knowledge (CK), 3.6 for Pedagogical Knowledge (PK), 3.1 for Pedagogical Content Knowledge (PCK), 3.3 for Technological Content Knowledge (TCK), 3.2 for Technological Pedagogical Knowledge (TPK) and 3.1 for Technological Pedagogical and Content Knowledge (TPACK). On the other hand, the urban teachers gained 3.5 for Technological Knowledge (TK), 3.5 for Content Knowledge (CK), 3.6 for Pedagogical Knowledge (PK), 3.4 for Pedagogical Content Knowledge (PCK), 3.6 for Technological Content Knowledge (TCK), 3.6 for Technological Pedagogical Knowledge (TPK) and 3.4 for Technological Pedagogical and Content Knowledge (TPACK). Thus, the scores were 3.3 for suburban teachers and 3.5 for urban teachers.

Through diverse instructional media, the teaching activities provided by the teachers were reading different kinds of texts and stories followed by exercises for example filling in the blanks, question, and answer sessions, listening to audio, song, or video followed by retelling or exercises, and writing stories.

SUGGESTIONS

Since this research only measured the TPACK level of the teachers in East Java, the researcher suggested that future researchers conduct the same topic with wider participants/samples. Since this study was conducted in a very short period, consequently the number of participants was also small, which also becomes the limitation of this study. It can be an opportunity for the future researcher to conduct the same topic in the same location, with a larger number of participants so that it can be a comparison or validation to this present study.

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