Technology-Supported English Language Teaching Professional Development: A Case Study of a Secondary English Teacher's TPACK

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Abstract: Teachers play a pivotal role in designing lessons, choosing and selecting suitable technology tools to engage students in various types of authentic tasks and problem solving activities essential for their lifelong skills. In integrating technology into their lessons, teachers are required to have technological, pedagogical and content knowledge (TPACK). Despite the growing number of studies in technology integration, not much has been done to specifically investigate how professional development program supports teachers to acquire this knowledge. This study sought to examine the extent to which a Technology-Supported English Language Teaching Professional Development (TSELT PD) program can support an English teacher's TPACK, and how the teacher selects a repertoire of technology suitable for her classroom practices. This research shows a preliminary result on the impact of TSELT PD program to support teachers in designing technology-integrated English lessons. Research questions were addressed through lesson design activities and teacher's lesson plan. The study demonstrated that having involved in a TSELT PD Program, the teacher's TPACK were reflected on her lesson plan through her ability to align the selection of technology with her curriculum goals, use the technology to support instructional strategies, and select technology tools compatible with the curriculum goals.

1 INTRODUCTION

ICT has become a fundamental part of everyday life in the 21st century. It transcends the boundaries of space and time, allowing people to reach out to the world around them using their skills to facilitate the connection they wish to have. Its ubiquity has made a great shift in the way learners learn (Prensky 2004) and it has also changed the way teachers teach (Becker 2000). The promises of technology integration provide ground for expectation of success, improvement, or excellence in education (Yang & Walker 2015). Having technological skill to utilize ICT may develop students' higher order thinking skills (OECD 2001), increase levels of participation and collaboration (Reeves et al. 2005), and amplify teachers' creative teaching strategies (ChanLin et al. 2006). However, with all the promises of ICT, its utilization in Indonesian education is still low (Harendita 2013). A study survey conducted by Son, Robb, & Charismiadji (2011) on Indonesian EFL teachers' computer literacy and competency, showed that teachers' basic computing skills are generally high. However, teachers' frequency in using computer applications is very limited to few types of applications such as word processing, presentation tools, or some technology tools use as learning resources.

To respond to the demands of the need to prepare teachers with the necessary knowledge and skills to integrate technology into their teaching, today's teacher professional development may need to be focused on this issue. Teachers' knowledge in knowing how to use technology for day to day activities is not necessarily in line with the knowledge in knowing how to use it for teaching and learning purposes (Koehler & Mishra, 2006). Understanding technology pedagogy and content knowledge (hereafter TPACK) is what teachers need to meaningfully integrate technology into teaching (Koehler & Mishra, 2006). TPACK is originated from the framework of pedagogical and content knowledge (PCK) proposed by Shulman (1986). With the emergence of educational technology, Koehler & Mishra (2006) added

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technology into PCK and described TPACK as the interweaving of technology, pedagogy and content knowledge. The transactional relationship between content, pedagogy and technology needs to be understood by teachers in order to orchestrate and coordinate technology, pedagogy and content into teaching (Mishra and Koehler, 2006).

Despite a number of studies on technology integration, not much has been done to investigate the connection between technology professional development for teachers, classroom implementation and students' responses. Studies investigating teachers' TPACK mostly relied on teachers' self- report and survey (Mahdum 2015) or evaluation of instructional design (Cahyono et al. 2016). Given that the area of research in looking at teachers' TPACK in language learning is still understudied, further investigation need to be conducted to gain more in- depth understanding on how teachers integrate technology in EFL classes not only through self- report and survey but also through comprehensive observation.

2 MANUSCRIPT PREPARATION

2.1 TPACK for Teachers

TPACK framework discusses the connection between the three components of the knowledge, among others are the knowledge of technology, pedagogy, and learning content. TPACK is an expansion of Pedagogical Content Knowledge (PCK) proposed by Shulman (1986). PCK seeks to complete the gap between content and pedagogical processes. According to Shulman (1986), one who teaches a course must be able to demonstrate his/her knowledge of the subjects as the requirement for teaching. Although knowledge about teaching methods is important, it is considered as the second priority of the qualifications of a teacher. Furthermore, Shulman said that knowledge of a subject matter is a combination of content knowledge and pedagogical knowledge.

Koehler & Mishra (2006) developed the idea of technological, pedagogical and content knowledge, which pragmatically explains the concept of knowledge. Knowledge is considered as a tool for designing a particular purpose. This is being used as the foundation of a "learning technology by design". Polly & Brantley-Dias (2009) explained that the TPACK framework not only refers to what is done by the teacher but also to what is known by the teacher. TPACK framework can be seen in Figure 1 which separately describes each knowledge that needs to be owned by teachers, namely the knowledge of Technology, Pedagogy and Content as well as the relationship among those elements.

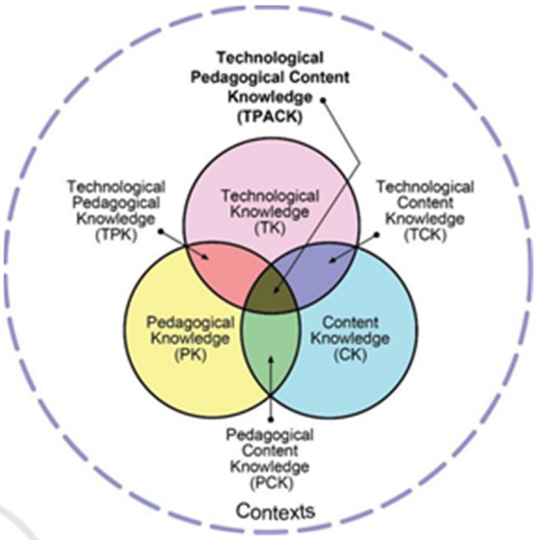

Figure 1: Framework of Technological Pedagogical and Content Knowledge (Mishra & Koehler, 2008)

Mishra & Koehler (2008) explained that teachers develop TPACK in a cyclical way beginning with the technology that is already known, then continue on teaching scenarios which have not or poorly known. TPACK framework can also help teachers to become designers, creators and decision makers in the technology integration. A number of studies have described the need for further research on TPACK and the aspects of consideration to develop teachers' knowledge. Robin (2008) emphasized the need for further research on the advantages of using multimedia associated with TPACK in learning activities. Furthermore, Polly & Brantley-Dias (2009) suggested to conduct research on how teacher trainers and material developers can help teachers to continue to develop their TPACK.

2.2 TPACK in EFL Teachers Professional Development

For teachers, by designing technology integrated lesson can be the best way to learn about educational technology (Koehler & Mishra, 2006). Teachers may work in team with different level expertise in content, pedagogy, and technology and develop lessons which can give solutions to some pedagogical problems through the use of technology

(Mishra et al. 2007). By having the experience to design technology- integrated lesson, teachers can not only learn the technology tools but also build something which is related to their needs and determine the specific instructional goals on the use of some particular technology tools (Punya et al. 2007).

Some studies have been done to investigate the development of in-service teachers TPACK through technology professional development. Tai (2015) investigated the impact of TPACK-in-Action CALL workshop on the developments of teachers' CALL competency and how they adopt what they learn in the workshop into teaching in their classroom. Involving 24 in-service elementary EFL teachers in Taiwan, this study indicated that after involving in 15 hours of TPACK workshop, the teachers show the development of their CALL competency. The workshop implemented the TPACK-in-Action model which consisted of modelling, analyzing, demonstrating, application and reflection. The development of teachers' CALL competency can be seen from the way they selected the online materials and appropriate technology for content teaching. They could also match the affordances of technology with the instructional goals and pedagogy. In contrast, using similar model to Tai (2015), Sarhandi, Khan, Buledi, & Asghar (2016) found different result in their study. Their study indicated that although the participants have qualified pedagogical knowledge, they were unable to successfully integrate technology in their teaching. This happened due to their lack of technological knowledge and pedagogical skills on using the technology tools. It was predicted that the workshop did not provide enough guidance on the integration of technology. Therefore, this study suggested that there is an urgent need to incorporate the pedagogical handling of technology along with the technical training.

In Indonesian context, Cahyono et al. (2016) examine how Indonesian EFL teacher improve the quality of their instructional designs and teaching practice after being introduced to TPACK framework. This study involved 20 secondary school teachers taking teaching practice course at master degree program. The participants joined 16 sessions of the course comprising the introduction to TPACK framework, the making of instructional design based on the TPACK framework and peer-teaching practice. The result of the study showed that the teachers benefited a lot from the TPACK-oriented teaching practice course and have successfully prepared instructional designs and performed the teaching practices by applying the TPACK framework.

Findings of these studies reveal the importance of teachers' ability to select online materials and appropriate technology for content teaching. Teachers with strong pedagogical knowledge or technological knowledge, might fail to integrate technology into their teaching when they are lack of the skills on using technology tools for educational purposes. Technology professional development program should provide teachers with the opportunity to use the technology and to become familiar with ways in which to integrate technology into their classroom (Frei, Gammill, & Irons, 2007, p. 179). In addition, the making of instructional design based on TPACK framework will also contribute to the development of teachers' TPACK.

2.3 Technology Integration in EFL Classes

The definition of technology integration has evolved over time, starting from the perspective that canters on technology towards the direction which emphasizes on the pedagogical aspects of the technology itself. Ertmer (1999) states that integration can be seen by observing the extent to which the technology is used to facilitate the learning activities. Although the definition of integration has changed, literature related to the integration of the technology has not changed much and showed little effect on day-to-day learning activities (Ertmer, 1999). In general, many teachers are not ready and do not feel confident to use technology in the classroom (Willis et al. 1999).

The causes of this situation can be identified as follows, the majority of programs preparing teachers to integrate technology into the learning was carried out in a less effective way and did not provide relevant examples (Ertmer et al. 2003). Another factor is the fact that in general, personal use of technology by teachers outside of school cannot efficiently be translated into learning activities in the classroom (Russel et al. 2003). The use of technology in learning is unique and requires good preparation. Ertmer (1999) believes the teachers faced serious challenges in trying to integrate technology into learning activities. He pays attention to some factors that hinder teachers in integrating technology. These factors are related to the lack of trainings, time and other facilities. Furthermore, other hindrances are related to teachers' understanding and beliefs in their day-to-day teaching which might not be relevant to the

implementation of technology integration itself (Ertmer, 1999).

In relation to this, Byrum & Cashman (1993) conducted a study on the problems, perception and preparation that must be done by the teachers in implementing technology integration. The study showed that 24% of the respondents have been asked to develop lesson plans that integrated technology into the teaching learning processes. Meanwhile, 83% of them stated that they were ready to implement the technology into the curriculum. Byrum and Cashman (1993) also described the teachers' understanding of the relationship between technologies and how this understanding was shaped based on their experience during college years. Furthermore, from the research it can be concluded that teachers were not exposed to the integrated use of technology, because many of them only had the experience of a teacher- centred learning environment and the teaching process itself was focused on the technology rather than on the elements of pedagogy.

3 METHODOLOGY

This study is part of a larger study which sought to investigate the extent to which a technology-supported English language teaching professional development (hereafter TSELT PD) which is based on TPACK framework from Koehler & Mishra (2006) could support the secondary in-service English teachers' knowledge and skills in planning and implementing technology integrated English lesson. The larger study employed a multiple-case study design involving three secondary English teachers from three different schools, and examined the teachers' TPACK development from planning to the implementation of the technology integrated lesson in classrooms as the result of the TSELT PD. Due to its limitation of space, this paper will only focus on one out of three participating teachers. Using a qualitative case study design, this paper will present the TSELT PD process and describe whether or not TPACK was reflected on the lesson plans of the teacher.

3.1 The Setting

The TSELT PD program in the present study was conducted independently for the purpose of this study. TSELT PD program consisted of a three-day- workshop and lesson design activities. On the first day, the workshop materials covered the overview of the advancement of today's technology, the introduction to technology integration in language teaching and learning to respond to the demand of today's education and the needs of today's students, the brief introduction to some possible technology tools to be integrated into English lessons, and the discussion on the type of activities teachers usually do in their classrooms. On the second day, the participants were introduced to some technology tools which can be integrated into English lessons (i.e. Padlet, Canva, Kahoot, Screencast O'Matic, Timeline maker, online mind map, etc.). They had the opportunities to explore the technology tools and discuss the possibility of those technology tools to deliver certain topics in relation to the curriculum and their teaching objectives. These activities were aimed at introducing the teachers to technological knowledge (TK) and technological content knowledge (TCK).

On the third day of the workshop, the participants were given a teaching demonstration on the use of some technology tools in English lesson, then, they were asked to discuss and reflect on the stages of the teaching demonstration. They reviewed the technology tools which have been introduced in the previous workshop and discussed how to teach those tools in their classrooms. This activity related to the technological pedagogical knowledge (TPK). Finally, at the end of the third day, the participants were asked to design lesson plans with the integration of at least one technology tools which they have explored. These final activities is related to technological pedagogical content knowledge (TPACK) of the teachers, in which they were to orchestrate the content that they were going to deliver and determine how they were going to deliver the content using technology tools.

3.2 Participants

One secondary high school teachers in Bandung involved in this study. In recruiting the participants, a set of technological knowledge survey was prepared to obtain the information on the teachers' knowledge about and experience in using technology in their classrooms. Their participation was voluntarily as the survey was distributed through Bandung English Teacher WhatsApp group. Out of 20 teachers who filled out the form, 8 of them were willing to join the workshop, and 3 of them were chosen to continue to lesson design and implementation process. This paper drew from a case of one of the teachers joining the lesson design activities.

3.3 Data Collection and Analysis

In order to see the reflection of teachers TPACK, recordings from the lesson design activities were transcribed, and the teacher's lesson plans were collected. The lesson plans were analyzed using the TPACK lesson plan rubric adapted from Harris, Grandgenet & Hofer (2010). This rubric focus on the integration of technology in the lesson plan comprising four categories with a 4 point-scale followed by a specific description for each score. The categories are 1) curriculum goals and technologies, 2) instructional strategies and technologies, 3) technology selection, and 4) Fit. The result taken from the analysis of the lesson plan were then triangulated with the data taken from the transcript of lesson design activities.

4 FINDINGS & DISCUSSIONS

This part of the paper presents the description of teacher's technological knowledge, the analysis of the lesson plan based on the TPACK lesson plan rubric and the result of the FGD.

4.1 Technological Knowledge

Ms. Anti is a secondary English teacher from Bandung, West Java. She has been teaching for 21 years. She uses technology tools for both personal and educational purposes. Based on the technological knowledge survey, Ms. Anti is able to use technology tools for day to day use such as email, Microsoft office tools, online forum, blog, and social media. In addition, she is also familiar with some technology tools which usually created for educational purposes, such as online quiz creator (Quipper), and online class (Edmodo). She also admits that she is not familiar with other technology tools such as, online sticky notes (linoit and Padlet), online mindmap (Mindomo, iMind Map), website creator (Google site, Weebly), and screen casting software (Screencast o'matic). To her, technology tools have been used as learning resources, such as using video from YouTube or as a tool to report the result of students' learning. She believes that technology can change the way she teaches as it can provide a more variation in teaching learning process as well as in providing teaching content for students. She also believes that students enjoy learning English with technology because of its multimodality.

4.2 Lesson Plan 1

The first lesson plan was designed for two meetings (2 x 80 minutes). In this lesson plan, Ms. Anti wanted her students to be able to 1) find detail information from the conversation on the recording, 2) identify the expressions of certainty, uncertainty, and asking for repetition, 3) practice the expressions, and 4) create a conversation using those expressions based on some situations given by the teacher. The first meeting will focus on goal number 1-3 with the emphasis on listening and speaking activities, and the second meeting will focus on goal number 4 with the emphasis on speaking activity. In her plan, 4 technology tools will be integrated in her lesson; audio recording, speech-to-text application, voice recorder, and Padlet (online sticky note). In the audio recording, there will be two people discussing about how to make a guitar become shiny. In this conversation, one person explained what to do while the other tried to catch the information. Once in a while, the man in the conversation asked for clarification or showed his uncertainty about the explanation. Prior to listening to the recording, Ms. Anti planned to provide the students with a list of guided questions to help them find specific information from the recording. Then, she planned to ask the students to practice the expressions using text- to-speech application, to ensure that students pronounce the words correctly, and finally she planned to ask the students to create a conversation explaining how to do or operate something to their friends. She will ask her students to record the conversation using voice recorder in their mobile phones, then upload the result on Padlet.

The first category on the TPACK lesson plan rubric examined how technology matched with the curriculum goals as stated in the lesson plan. Referring to the rubric, Ms. Anti's lesson plan received score 3 (technologies selected for use in the instructional plan are aligned with one or more curriculum goals). The use of audio recording combined with guided questions may help students in reaching the first and the second goals. However, the use of speech-to-text application for goal number 3 might not be enough to facilitate students in practicing the expressions, because the application is only useful for checking pronunciation. Students need to practice using the expressions in context. The use of voice recording tool may help students to do the conversation outside the classroom in the real settings. Students can also self-check the result of the conversation. Uploading the recorded conversation on Padlet may also be useful for the

students to be able see students' work and do peer checking. However, Ms. Anti did not state any specific goal of using Padlet in her lesson plan.to see students' work and do peer checking. However, Ms. Anti did not state any specific goal of using Padlet in her lesson plan.

The second category on TPACK lesson plan rubric was about the match between instructional strategies and technologies. In her lesson plan, Ms. Anti stated that her lesson was based on cooperative learning, in which, by the end of the lesson, the students will work together to create a conversation and record it using voice recorder. In the process, students will be asked to work in group to identify detail information from the audio recording, practice the expressions of certainty and uncertainty, and finally record their voice. The technology use may support the students' active participation, hence, not all the chosen tools might optimally facilitate the cooperative learning process. Speech-to-text, for example, is more suitable for individual usage, as students can practice their pronunciation and self-check their accuracy. While voice recorder can be very suitable for students working in groups. Thus, some of the choices of the technology tools do not directly facilitate the cooperative learning. Therefore, this category received score 2 (technology use minimally support the instructional strategies).

The third category referred to the compatibility of the technology selection with the curriculum goals and instructional strategies. Examining the content of the lesson and the instructional plan, this category received score 3 (Technology selection(s) are appropriate, but not exemplary, given curriculum goal(s) and instructional strategies). Her plan in using audio recording can help students to build their background knowledge and get the model of conversation using the targeted expressions. Departing from this model, students practice the expressions and create their own conversation. However, some of the tools cannot maximally support the cooperative learning strategy she chose as the instructional strategy. The last category was about the 'fit' of the content, pedagogy and technology together. Some of the technology tools she chose could be considered in line with the content she will deliver and the pedagogy she will utilize in delivering the content. Therefore, for this category, the lesson plan received score 3 (Content, Instructional strategies, and technology fit together within the instructional plan).

4.3 Lesson Plan 2

The second lesson plan was designed for 1 meeting (1 x 80 minutes). In this lesson plan, Ms. Anti aimed at having students to find detail information on a reading text about "The Bird of Paradise". She chose
3 technology tools in her lesson; Word-it-out (a word cloud creator website), a video about bird of paradise downloaded from YouTube, and Kahoot (an online quiz creator). She planned to start the lesson by showing some keywords taken from the passage using Word-it-out, then she will ask the students to discuss the familiar or unfamiliar words. She will continue her lesson by asking students to identify the words they have discussed on the video being shown. Then, she will group the students (group of four) and distribute a reading passage. She will cut out the reading passage into 4 parts and distribute each part to each member of the group. The reading activity will be conducted using jigsaw-reading strategy. Finally, after all students read and discuss the passage, she will provide a set of reading comprehension questions using Kahoot.

For the first category of the rubric, Ms. Anti's lesson plan received score 4 (Technologies selected for use in the instructional plan are strongly aligned with one or more curriculum goals). All the technology tools chosen in this lesson plan will be able to scaffold the students in getting detail information of the passage. Word-it-out and Video showing will prepare students with some keywords they will encounter in the passage and help them understand the text while reading it. The use of Kahoot, which is a game based learning activity, can be the reason for students to read carefully and answer the questions accurately as they might have the urge to win the game.

For the second category, which focuses on the technology and instructional strategy, Ms. Anti's lesson plan received score 4 (Technology use optimally supports instructional strategies). In the plan, she will use jigsaw reading strategy which is a part of cooperative learning. It is stated that students will have to work in group of four, read some parts of the passage, then share and discuss what they have read to get the complete idea of the whole passage. Using Word-it-out and YouTube can help students before they do the jigsaw reading activity, while playing game with Kahoot can support them to work together while finding the answers to the questions prompted on Kahoot.

The third category, which examined the match of the choice of technology tools to both curriculum and instructional strategies, the lesson plan received score 3 (Technology selection(s) are appropriate, but not exemplary, given curriculum goal(s) and instructional strategies). The use of word-it-out and YouTube video are appropriate to have the students ready to read and comprehend the passage, while Kahoot is appropriate to check their comprehension on the information inside the passage (Curriculum Goal). All of the technology tools are also appropriate to support the jigsaw reading strategy (instructional strategy).

Regarding the content, pedagogy, and technology fitness, Ms. Anti's lesson plan received score 4 (Content, instructional strategies and technology fit together strongly within the instructional plan). The content provided in the lesson which is related to the students' ability to obtain detail information of a passage is in line with the curriculum. Using jigsaw reading is a good way to support students' active learning in understanding the passage. The choices of technology can support all the activities to support students during the lesson.

4.4 Lesson Plan 3

The final goal of the third lesson plan is having students to create an infographic about some endemic animals in Indonesia. The lesson plan was divided into four meetings (4 x 80 minutes). In this lesson, Ms. Anti wanted her students to be able to 1) listen and identify information about Komodo dragon from a video, 2) identify the structure and language features of a report text, 3) write a report text about some endemic animals in Indonesia, and finally, 4) create an infographic explaining one endemic animals in Indonesia. There will be 4 technology tools to be integrated in her lesson; YouTube video, Power Point slides, Wikipedia and Canva (graphic-design tool website). In the first meeting, she planned to start building students' knowledge about endemic animal by showing a video downloaded from YouTube about Komodo Dragon and ask students to answer some comprehension questions based on the video. At the second meeting, Ms. Anti will provide students with a report text about Rhinoceros and discus the structure of the text and its language features. The third and fourth meetings will be used to do collaborative writing activities, students will be asked to find information on certain endemic animals on Wikipedia, then write a report text based on the information they obtained. Peer-correction and teacher feedback activities will be conducted before students start creating the infographic using Canva website.

For the first category, the third lesson plan received score 4 (Technologies selected for use in the instructional plan are strongly aligned with one or more curriculum goals). All the technology tools which will be used in this lesson can support the curriculum goals stated in the lesson plan. The use of YouTube video can help students in building the students' knowledge and give examples on the kinds of information they need to find when writing a report text about animal. The use of Power Point slides, prompting on the structure and the language features of the report text, will give ideas to the students on the type of text they are expected to write. The use of Wikipedia will help students to search and select important information for their writing task. Finally, using Canva as a graphic-design tool website will boost students' creativity not only in writing report text, but also presenting it in an informative and attractive ways.

For the second category, this lesson plan also received score 4, which means "technology use optimally supports instructional strategies". As Ms. Anti planned to use collaborative writing activity, she will group the students from the beginning of the lesson. She will encourage each students to be in charge of different tasks and lead different stages of the writing process. For example, one student will be responsible to collect and compile information selected by their friends, one will be responsible to type all the ideas for the writing, one will be responsible to edit the text based on the teacher and peer feedback, and one will be responsible for creating the infographic. Choosing Wikipedia as the source of information and Canva for creating infographic is appropriate to support this collaborative work.

The third category focused on matching technology to both curriculum and instructional strategies. Considering the choices of technology tools, as mentioned above, the choices matched the stated curriculum goals and supported the collaborative writing activity as the instructional strategy she planned to have in her lesson.

For the fourth category, that is the fit among content, pedagogy and technology, Ms. Anti's lesson plan could be considered exemplary (content, instructional strategies and technology fit together strongly within the instructional plan). She has been able to orchestrate the content she wished to deliver to the students, the appropriate instructional strategy to support her goals, and the choice of technology tools which are suitable for students to create an infographic report text in a collaborative writing environment.

4.5 Lesson Design

The lesson design activities were conducted before the teachers created their lesson plans. The researcher and the three participating teachers sat together discussing what the teachers were going to deliver in their class. This part will focus on the lesson design conducted with Ms. Anti.

It was started with discussing the existing lesson plans she usually have for delivering certain learning content. She explained the objective of the lesson, the stages of activities she usually did, and some supplementary materials she usually provided to her students. Having discussed the existing lesson plan, we started to explore the possibilities of making some changes in her lesson plan in order to give new ways of learning experiences to the students. We looked at some technology tools which have been introduced during the workshop and tried to see the affordances of the tools. The possible pedagogy in relation to the technology tools were discussed and evaluated to see the match with the curriculum goals and the learning content.

The first lesson plan focused on listening and speaking activities to practice expressions of certainty, uncertainty and asking for clarification. Ms. Anti usually used an audio recording and asked the students to answer some comprehension questions. Then she asked the students to create a dialog and demonstrate the dialog before the class. In the new lesson plan, Ms. Anti planned to use additional technology tools; speech-to-text application for practicing pronunciation, voice recorder for recording students' dialog, and Padlet for displaying the recorded dialog. Speech-to-text was chosen because she found out that students usually have difficulties in pronouncing some words, such as the words 'certain 'and 'uncertain', or the phrases 'can you say that again?', 'are you sure?', etc. Based on the conversation with Ms. Anti during the lesson design, the use of voice recorder was considered to give more opportunities for the students to do the dialog in the real situation outside the classroom. Students can also listen to their own conversation and do self-correction or peer-correction. The use of Padlet was considered to save the time for doing the conversation before the class. Padlet can make it possible for the students to listen to other groups' dialog and give comments.

The second lesson plan focused on reading activities to find detail information from a text. Ms. Anti usually gave students a text about "bird of paradise" then asked the students to answer comprehension questions based on the text. She said that usually, students were reluctant to read the text and answer the questions. The lesson went a little boring for the students. In the new lesson plan, Ms. Anti wished to conduct a more interactive reading activity for her students, so she decided to choose three technology tools to be integrated in her lesson; Word-it-out for prompting keywords in pre-reading activity, a YouTube video for helping students identifying the keywords, and Kahoot for checking students' comprehension. During the discussion, Ms. Anti stated that students usually have difficulties to comprehend a passage because they found too many unfamiliar words in the text, therefore, she believes that using Word-it-out to prompt some keywords in pre-reading activity will be beneficial for the students. The use of YouTube video will give the students some visual description of the words being discussed in previous activities. She believes that by doing so, the newly learned words will retain longer in the students' mind. Furthermore, by using Kahoot, she wants to try gamifying her class and see the reaction of her students. She predicts that her students would love answering comprehension questions using the game-based activity.

The third lesson plan focused on writing report text about endemic animal in Indonesia. Ms. Anti usually give students a model of report text, discussed the language features and the structure of the text, then, asked the students to write a report text about one of the endemic animals in Indonesia. In her new lesson plan, she planned to use 4 technology tools to be integrated in her lesson; YouTube video about Komodo Dragon to give students background knowledge about the topic to be discussed, Power Point slides to present the model text and show the structure and language features of the text, Wikipedia for students to search information about endemic animals of their own choices, and Canva to create infographic as the final product. She mentioned that will be suitable to attract students attention on the topic, the use of power point slides will make it easier for the students to identify the structure and language features of the text together with the teacher. Wikipedia will help students to learn and select information which is relevant to their needs, while Canva will boost the students' creativity in writing a report text.

5 CONCLUSIONS

This study focused on examining whether or not, and how the teacher's TPACK was reflected in the lesson design activity and in the lesson plan documents. The data shown that the teacher

considered the relationship among content, pedagogy, and technology during the process of lesson planning. From the three lesson plans, it can be seen that she gradually developed the way she chose the technology tools to be integrated in delivering certain learning content and considered the appropriate instructions for classroom activities. The third lesson plan reflected her TPACK knowledge in designing an infographic project which strongly connected the materials she wanted to deliver, the instructions as well as the appropriate technology tools to be integrated.

The findings of this study are in line with the findings of similar studies conducted by Koehler et al. (2011) & Tai (2015). In this study, the teacher had the opportunities to design technology-integrated lesson based on the materials that she learned from the workshops. The teacher was able to develop her understanding of the interrelationship among technology, pedagogy and content, and tried to adjust the three components to fit each other.

The workshop, which was not relying on lectures and demonstration only, gave the opportunities to the teacher to explore and play around with the technology tools as user and designer. As mentioned by Burns (2002) & (Zhao, 2003), enabling teachers to use technology meaningfully requires more than affording them to isolated technology skills. By working collaboratively with other workshop participants and the researcher, considered the affordances of the tools and tried to solve authentic problems related to her classroom practice, she learned to creatively re-purpose some technology tools (i.e. Speech to text, Padlet, Word it out) which were not designed for educational purposes (Mishra et al. 2009). Sometimes the group discussed how the content can drive the integration of technology tools (and their pedagogical use) and sometimes they also discussed the possibilities of what the tools can do that can drive the pedagogy of the content. In this manner, they play with technologies and ideas, and be open to constructing new experiences for students (Koehler et al., 2011).

Technology professional development which aimed to help teachers to integrate technology should not be thought of a single event or isolated programs (Zhao et al., 2006 p. 162). In this study, the series of lesson design activities also became an important aspect in helping the teacher designing technology- integrated lesson plans. The continuous discussions with the other participants and the researcher allow the teacher to develop different mindset towards technology. This mindset was developed towards the process of thinking deeply about the role of technology in the learning process (Koehler et al., 2011). Through the discussions, the teacher was able to invent new ways of teaching (Zhao et al. 2006) by integrating technology into her teaching sequences.

However, this study is still limited to the reflection of teacher's TPACK on the lesson plan only. Further investigation need to be conducted to see how the teacher implement her lesson plan into real action in the classroom. Niess (2008) stated that "no matter how marvellous the coursework is in providing teachers with knowledge about teaching with technology, they must have opportunities to apply this knowledge" (p. 246). Therefore, the teacher's experience in implementing what has been planned, evaluating the value of specific instructional strategies, and comprehending the complexities involved in teaching with technology will contribute more to the development of TPACK.

REFERENCES

Becker, HJ 2000, 'Findings from the teaching, learning, and computing survey: is Larry Cuban right?' *Education Policy Analysis Archives*, vol. 8, no. 51, pp. 1–31.

Byrum, DC & Cashman, C 1993, 'Preservice teacher training in educational computing: Problem, perception and preparation', *Education, Journal of Technology and Teacher*, vol. 1, no. 3, pp. 259–274.

Cahyono, BY, Kurnianti, OD & Mutiaraningrum, I 2016, 'Indonesian EFL Teachers' Application of TPACK in In-service Education Teaching Practices', *International Journal of English Language Teaching*, vo. 4, no. 5, pp. 16–30.

ChanLin, L et al 2006, 'Factors influencing technology integration in teaching: a Taiwanese perspective', *Innovations in Education and Teaching International*, vo. 43, pp. 57–68.

Ertmer, PA 1999, 'Addressing first- and second-order barriers to change: Strategies for technology integration', *Education Technology Research and Development*, vol. 47, no. 4, pp. 47–61.

Ertmer, PA et al 2003, 'Increasing preservice teachers' capacity for technology integration through the use of electronic models', *Teacher Education Quarterly*, no. 30, pp. 95–112.

Frei, S, Gammill, A & Irons, S 2007. *Integrating technology into the curriculum*, Huntington Beach, CA: Shell Education.

Harendita, ME 2013, 'Why Resist? A Closer Look at Indonesian Teachers' Resistance to ICT', *International Journal of Indonesian Studies, Vol 12013*, vol. 1, no. 2, pp. 79–109.

Harris, J, Grandgenet, N & Hofer, M. 2010, 'Testing a TPCK-based technology integration assessment instrument. In CD, Maddux, D, Gibson & B, Dodge, eds', *Research highlights in technology and teacher education2*, Chesapeake, VA: Society for Information

Technology in Teacher Education (SITE), pp. 323–331.

Koehler, MJ et al 2011, 'Deep-play: Developing TPACK for 21st century teachers', *International Journal of Learning Technology*, vol. 6, no. 2, pp. 146–163. Available from: http://punya.educ.msu.edu/publications/koehler.et.al.ijlt2011.pdf.

Koehler, MJ & Mishra, P 2006, *Technological pedagogical content knowledge: a framework for teacher knowledge*.

Koehler, MJ & Mishra, P 2006, 'Technological pedagogical content knowledge: a new framework for teacher knowledge', *Teachers College Record*, vol. 108, no. 6, pp. 1017–1054.

Mahdum 2015, 'Technological pedagogical and content knowledge (TPACK) of English teachers in Pekanbaru, Riau, Indonesia', *Mediterranean Journal of Social Sciences2*, vol. 6, no. 5, pp. 168–176.

Mishra, P & Koehler, M 2008, *Handbook of technological pedagogical content knowledge (TPACK) for educators*, New York, Routledge.

Mishra, P, Peruski, L & Koehler, M.J 2007, 'Developing technological pedagogical content knowledge *(TPACK)* through teaching online', *Proceedings of Society for Information Technology Teacher Education International Conference 2007*, vol. 2, no. 2, pp. 2208–2213. Available from: http://www.editlib.org/p/24918.

Mishra, Matthew Koehler & Kareluik 2009, 'The song remains the same: looking back to the future educational technology', *Tech Trends*, vol. 53, no. 5, pp. 48–35.

Niess, M.L 2008, 'Guiding preservice teachers in developing TPCK in American association of colleges for teacher education', In *Handbook of technological pedagogical content knowledge (TPCK) for Educators*, New York: Routledge for the American Association of Colleges for Teacher Education, pp. 223–250.

Oecd, 2001, *Schooling for tomorrow learning to change: ICT in schools*, France, OECD of Publication Service. Polly, D. & Brantley-Dias, L., 2009. TPACK: Where do we go now? *Tech Trends*, 53(5), p.46.

Prensky, M 2004, 'The emerging online life of the digital native', pp. 1–14. Available from: http://www.bu.edu/ssw/files/pdf/Prensky-The_Emerging_Online_Life_of_the_Digital_Native-033.pdf [Accessed May 20, 2016].

Punya, M., Koehler, M.J & Zhao, Y 2007, *Faculty development by design: integrating technology in higher education*, Greenwich, CT: Information Age Publishing.

Reeves, TC, Herrington, J & Oliver, R 2005, 'Design research: a socially responsible approach to instructional technology research in higher education', *Journal of Computing in Higher Education*, vol. 16, no. 2, pp. 97–116.

Robin, BR 2008, 'Digital storytelling: a powerful technology tool for the 21st century classroom. *Theory into Practice*, vol. 47, no. 3, pp. 220–228. Available from: http://www.informaworld.com/10.1080/00405840802153916.

Russel, M et al 2003, 'Examining teacher technology use: implication for preservice and inservice teacher education', *Journal of Teacher Education*, vol. 54, pp. 297–310.

Sarhandi, PS et al 2016, 'Integration of technology with pedagogical perspective: an evaluative study in in-house call professional development', *Arab World English Journal*, Special Is, no. 3, pp. 23–35. Shulman, LS 1986, 'Those who understand: knowledge growth in teaching', *Educational researcher*, vol. 5, no. 2, pp. 4–14.

Son, J, Robb, T & Charismiadji, I 2011, 'Computer literacy and competency: a survey of Indonesian teachers of English as a foreign language', *Call-Ej*, vol. 12, no. 1, pp. 26–42. Available from: http://eprints.usq.edu.au/18371/3/Son_Robb_Charismiadji_Doc_18371.pdf.

Tai, SJD 2015, 'From tpack-in-action workshops to classrooms: call competency developed and integrated', *Language Learning & Technology*, vol. 19, no. 1, pp. 139–164.

Willis, J, Thompson, A & Sadera, W 1999, 'Research on technology and teacher education: current status and future directions', *Educational Technology Research and Development*, vol. 47, no. 4, pp. 29–45.

Yang, S & Walker, V 2015, 'A pedagogical framework for technology integration in ESL classrooms: the promises and challenges of integration', *Journal of Educational Multimedia and Hypermedia*, vol. 24, no. 2, pp. 179–203. Available from: ttp://www.scopus.com/inward/record.url?eid=2s2.0-84938068761&partnerID=tZOtx3y1.

Zhao, Y, Frank, KA & Ellefson, NC 2006, 'Fostering meaningful teaching and learning with technology: characteristics of effective professional development. In E. A. Ashburn & Ro. E. Floden, Eds', *Meaningful Learning using Technology*, New York: Teacher College, Columbia University, pp. 161–179.