Teachers' Consideration in Technology-Integrated Lesson Design

A Case of Indonesian EFL Teachers

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Abstract—The ubiquity of technology offers promising benefits of its integration in educational sector. However, the rationale regarding the teachers' decision on integrating technology into their teaching and learning activities are still understudied. This study aims at exploring teachers' consideration in choosing certain technology tools in the context of technology-integrated lesson design activities. Data were obtained through a focus group discussion during the lesson design which was followed by a semi structured interview. Findings for this study have enhanced the understanding of some aspects that teachers put into consideration while designing technology-integrated lessons; identifying goals, analyzing learners, planning instructional activities, and choosing the technology tools. In addition, the findings of this study also postulate that during the lesson design activities, teachers need to be triggered by some cognitive prompts in order to support them making some decision on the learning objectives, the stages of activities, and the technology tools they need to integrate.

Keywords—Lesson design, technology integration, EFL Indonesia

1 Introduction

The burgeoning of mobile technology, internet-connected devices, and Web 2.0 tools present new challenges for teachers to infuse technology into their classroom practices. It is believed that technology can enhance teachers' instructional quality through innovative instructional methods [1] and enhance the learning experience of students [2], [3]. Studies have demonstrated how technology integration in teaching is beneficial for students' learning [4], [5].

Albeit these promises, teachers' lack of knowledge and skills in the utilization of computer have become the major obstacles for technology integration in most countries. Studies conducted by Cuban [2], Ertmer [6], and Wu and Wang [7] pointed out

that although teachers frequently use technology tools for their day to day purposes, they rarely apply them for teaching purposes. Another study conducted by Mumtaz [8] also highlighted that despite the availability of hardware and software at schools, still, many teachers prefer to resort to the conventional way of teaching.

When teachers are only equipped with technology skills without having the knowledge for integrating it in the classroom, they might underuse or overuse the potential of technology in their teaching. Teachers' inability to integrate technology in their classroom instructions have become the major reasons for the limited use of technology in the teaching learning process [9], [10]. The availability of technology tools should be able to support teachers in combining teaching strategies and the subject-knowledge to be delivered, rather than focusing on technology skills only [11] in facilitating sufficient technology integration in the classroom. The essential part is in equipping teachers with the ability to use certain technology tools to deliver subject content knowledge using appropriate instructional strategies. Therefore, it is important to encourage teachers to not only have their technology skills but also the knowledge and skills to integrate technology tools into their teaching strategies and subject content knowledge.

The concept of pedagogical content knowledge (PCK) which was proposed by Shulman [12] has been expanded by Koehler and Mishra [13] by including technological knowledge on it. Technological pedagogical content knowledge (TPACK) connects the three elements of PCK, technological content knowledge (TCK), and technological pedagogical knowledge (TPK). It is believed that these three elements of knowledge, when implemented into the classroom practices, have the potential to improve students' learning. As the concept of TPACK and its components consists of the primary criteria for technology integration in teaching, it can be used to direct the teachers' professional development program in regards to technology integration.

Studies in the area of technology integration in Indonesia mainly discuss how teachers perceived their own knowledge, skills, and practice in integrating technology. In terms of technology tools, many teachers mentioned that they utilize PowerPoint presentation for their teaching, although few of them are familiar with the use of MS Access, Excel, Winamp, DVD player and internet [14], [15]. This study also shows that many teachers believe that their technological knowledge and skills are still insufficient for teaching purposes. This is due to the fact that most professional development activities were carried out as a one stop (short) workshop. This type of workshop might provide technological skill only which is not enough for effective use of modern technology integration in teaching [16]. In terms of teachers' self-efficacy towards technology integration, a study conducted by Lailiyah & Cahyono [17], involving 23 EFL teachers, shows that most teachers have high self-efficacy towards technology integration, with the highest score on the ability to select appropriate technology for instruction based on curriculum standard.

Given the high demand for EFL teachers in Indonesia to integrate technology in their teaching practices, a research exploring reasons behind teachers' consideration in integrating technology into the process of designing lessons is essential to guide the technology teacher professional development efforts. The goal of this study is to explore the teachers' consideration in choosing certain technology tools in the context of

technology-integrated lesson design activities. This study was guided by the following research questions: What are the teachers' considerations when making decision about the integration of technology in their teaching practices? And how technology-integrated lesson design activities support teachers in making the decision about the integration of technology in their teaching practices?

2 Literature Review

2.1 Teachers and technology integration

Most teachers who have access to technology and have competencies in using computers do not apply technology in their instruction [18]. In general, regarding the perspectives in technology integration, teachers can be divided into two categories. Teachers who belong to the first category are those who show positive attitudes toward technology integration and have confidence that integrating technology into teaching may result in efficient and effective teaching and enhance students' motivation in learning [19], [20]. However, those who belong to the second category believe that the use of technology may distract and interfere the learning focus of the students [21]. Although many teachers recognize that technology integration can be beneficial for their classroom [22], their motivation in applying technology in teaching are highly influenced by the lack of successful experiences. Therefore, it is important to provide room for teachers to experience successful technology integration in their teaching practices. The successful experience in technology integration is determined by teachers' pedagogical knowledge (PK), content knowledge (CK), and technological knowledge (TK). Studies have shown that the insufficient use of technology in the classroom happened due to the fact that teachers do not integrate their technology-based instruction with appropriate strategies and relevant content knowledge ([23].

Teachers' ability to integrate their pedagogical knowledge and content knowledge with technology use into teaching instruction is vital in their professional development. Some studies underestimate the emphasis on technological knowledge only in the teacher professional development program. It has been generally recognized that technology skills alone are inadequate to develop teachers' capacity in technology integration. A study conducted by Harris, Grandgenet and Hofer [25] have demonstrated that pedagogical knowledge of in-service teachers may enhance their ability in technology integration. Other studies have also revealed that many in-service teachers showed their concerned on subject content when choosing certain technology tools to be integrated into their instruction [26], [27]. According to this study, in-service teachers whose PK and CK exceeded their TK utilize various instructional strategies in delivering different kinds of content knowledge while seeking for technology that is suitable to their objective regarding the integration of technology. During professional development program, these teachers usually apply a PK base, combined PK and subject content, and technology.

2.2 Learning design models for technology integration

A number of studies have been conducted to develop models which support teachers in designing learning opportunities using new and emerging technologies. One of the prominent models proposed by Angeli & Valanides [28] – a model of designing technology integrated activities based on consideration of school context, classroom experiences, epistemological beliefs, content, learner backgrounds, pedagogy, ICT tools, implementation, assessment and reflection. To them, in designing technology integrated lessons, teachers should have the knowledge about technology tools and their affordances, pedagogy, content, learners, and context, and they should be able to synthesized all those aspects as their consideration when teaching particular topics with technologies.

In this model, they specify five principles that can be used as means of consideration in technology integration which can significantly give additional value to teach certain topic, for specific learners, in specific context

- Identify topics to be taught with ICT in ways that signify the added value of ICT tools, such as topics that students cannot easily comprehend, or teachers face difficulties in teaching them effectively in class
- Identify representations for transforming the content to be taught into forms that are comprehensible to learners and difficult to be supported by traditional means
- Identify teaching strategies, which are difficult or impossible to be implemented by traditional means, such as application of ideas into contexts not possible to be experienced in real life, interactive learning, dynamic and context-situated feedback, authentic learning, and adaptive learning to meet the needs of any learner
- Select ICT tools with inherent features to afford content transformations and support teaching strategies
- Infuse ICT activities in the classroom [28].

In their study, the teachers start the lesson design process through identifying topics or materials which in which technology might provide support. This first step is related to activating relevant pedagogical content knowledge. This step is followed by the activities in which teachers choose certain topics, appropriate teaching strategies, and learners' activities. Technology tools are then selected to facilitate students' learning. These processes involve the teachers' pedagogical knowledge (PK) and technology pedagogical knowledge (TPK).

In 2009, Angeli and Valanides conducted a follow up study proposing a 'Technology Mapping" model. They believe that while there is no one 'right' way in designing technology integrated lessons, technology mapping can be used to guide teachers' thinking in designing instruction that is deeply relevant to the context of their teaching practice. Using technology mapping, teachers may design their instruction within their situated nature of thinking and their critical role of their understanding toward the context and the students. Using the "technology mapping" as their springboard, Kramarski and Michalsky [30] attempt to facilitate teachers' TPACK creation through some metacognitive prompts. To them, the design process requires complex thinking,

therefore, teachers need metacognitive prompts to facilitate better comprehension and regulation of the design.

Another study on learning design model was conducted by Chai, Koh, Ho and Tsai [31]. In their design, they integrated the prompts proposed [28], [30] to generate a guide for teachers in designing their lesson plans. They integrated the prompts into Dick & Carey's [32] lesson design model in which requires preservice teachers to identify the instructional goals of the curriculum and analyze the learners in relation to the goals. Using this guidance, teachers will be able to determine the objective of their lessons, select the classroom instructional activities, choose the technology tools, and formulate assessments.

Drawing from these studies, the lesson design models show that in designing technology integrated lessons, there is the needs for teachers to be involved in a learning by design activity that engage them in

- Identifying the topics, the instructional goals, and transforming the content to be taught
- Identify the teaching strategies
- Selecting technology tools to be integrated in the lessons

The current works on lesson design models provide possibilities for teachers to shape their perspective in regards to their consideration in designing technology integrated lessons.

2.3 Teachers' considerations in designing technology-integrated lessons

Grounded in the learning by design approach, Chai & Koh [33] propose a scaffolded TPACK learning design model (STLDM) which consists of two phases of lesson design. Teachers' consideration in designing technology-integrated lesson can be facilitated by identifying goals, analyzing learners, planning instructional activities, and choosing media/create ICT-based resources [33]. [33]classify the stage of identify goals and analyze learners as the first stage of designing lesson. In identifying goals, teachers can start with identifying the educationally and developmentally sound attitude, skills, and knowledge that students should learn from the subject matter. In relation to technology tools, teachers may consider whether or not the topic can be represented by technology tools and create more powerful pedagogy. In analyzing learners, teachers can refer to their past experiences in identifying the learners' difficulties in learning the topic. This can be related to the usual misconception, the strength and weaknesses of the existing ways of teaching the topics. The consideration in the use of technology tools can be departed from whether or not the existing ways of teaching certain topics can be enhanced with the use of technology tools. These two aspects of consideration – identify goals and analyze learners – can be used in the process of identifying learning objectives which comprise the articulation of learners' appropriate, arrange the list of objectives, starting from the cognitively most challenging objectives.

The second phase, [33] includes planning instructional activities and choosing media/creating ICT-based resource in the lesson design. In planning instructional activities, teacher needs to consider the appropriate student-centric learning practices that could be incorporated for the learning of the subject matter and the development of the learning practices. Teachers also need to predict some possible problems and necessary supports that they require to provide in their learning process. Meanwhile in choosing the media/create ICT-based resources, teachers need to consider some good practices associated with the chosen technologies and how the technology tools can support students to make meaning of the topic. These two aspects of consideration – plan instructional activities and choose media/create ICT based resources – can be used in designing decision which comprise the selection of student-centric teaching and learning activities supported by technologies and determining the means to assess students' learning and learning process.

3 Methodology

3.1 Research design

This study adopts the multiple case-study approach [34] which involves collecting and analyzing data from several cases [35]. Multiple case study allows the researcher to analyze and understand the similarities and differences drawing from interaction with the two junior high school EFL teachers involved. In this study, each participating teacher is considered as a case and the schools constituted the context. The cases were bound to teachers' consideration in designing technology-integrated EFL lessons.

3.2 Study context

Participating teachers were involved in a Technology-Supported English Language Teaching Professional Development (here from, TSELT-PD). TSELT-PD program is delivered in the form of a three-day workshop which was designed based on the TPACK framework proposed by [13] aimed at supporting teachers in developing their understanding of creating English lessons with the integration of technology. In this workshop, teachers were introduced to technology integration in language teaching, explored some technology tools potential to be utilized in the classroom, and discuss the suitability of the tools to teach certain aspects in English language learning. At the end of the workshop teachers were invited to have in-depth-discussion through lesson design activities, discussing the goals of their teaching, the learners, the teaching strategies, the technology tools suitable for their context. Some cognitive prompts were given to support them in articulating their considerations while designing practical pedagogical decision that can best help students to benefit from learning experiences [36] with the integration of technology.

3.3 Participants

Before the beginning of TSELT-PD workshop, the participants were given a set of technological knowledge questionnaire find out their familiarity towards some technology tools. The result of the questionnaire is described in the following section.

Teacher 1: is a secondary English teacher from Bandung, West Java. She has been teaching for 23 years. She uses technology tools for both personal and educational purposes. Based on the technological knowledge survey, she 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 mind map (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 i.e. 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.

Teacher 2: uses technology for both personal and educational purposes. Based on the technological knowledge survey, Teacher 2 is able to use technology tools for day to day use such as email, Microsoft office tools, online forum, and social media. However, from her answers on the survey, she is not familiar with any of the technology tools for educational purposes (online sticky notes, online mind map, cartoon creator, online quiz maker, online class, google apps, website creator, blog and also screen casting tool). She only uses Power Point slides and video from YouTube in her class. She has never joined any trainings related to the utilization of technology. However, she believes that using technology can provide differences in the teaching learning process as it can provide variation in terms of giving more option in learning activities. She mentioned that through the use of technology, the teaching learning process will not be restricted to the use of whiteboard, textbook and handouts provided by the teacher. Looking at the way the students react, she also believes that students enjoy the use of technology in the classroom.

3.4 Data collection

Data were collected through focus group discussion conducted during the lesson design activities. It is also supported by semi structured interviews to look at some reasoning behind teachers' decision in choosing certain technology tools. In the lesson design activities, teachers were given some prompts to support them articulating their ideas in choosing the topics they are going to teach, determining the goal of their teaching, designing the teaching stages and choosing the technology tools to be integrated in their teaching. The recordings from this lesson design activities were transcribed verbatim and analyzed to look at how teachers think out loud in making some

consideration on some aspects of the lesson plans (i.e. instructional goals, learners & context, learning activities, and technology tools).

3.5 Data analysis

The data analysis in this study consist of within-and-cross-cases analyses. It is, then, followed by a three-step procedure consist of data reduction, cross-case display and conclusion drawing/verifying [37]. At the first phase, transcripts of recordings from lesson design activities were used to generate general information of the different consideration taken by teachers in integrating technology into their lesson plans. Initial codes were developed based on the scaffolded TPACK learning design model [33] as the general categories to guide the data analysis. Drawing from these general categories, they were specified subsequently through inductive analysis of teachers' consideration in technology integrated lesson design.

At the second step, the data taken from each case were collected and displayed in the form of matrix. Through this matrix, it can be synthesized certain aspects underlying each teacher's consideration in integrating technology into their lessons. The third step was conducted to draw and verify conclusion. Three tactics from [37] were utilized to generate meaning from the data obtained:

- Noting patterns, themes
- Seeing plausibility
- Clustering.

Table 1. Data analysis categories and codes

Categories (deductive analysis)	Operational Definition	Codes (Inductive analysis)
Identifying Goals	The educationally and developmentally sound attitudes, skills, and knowledge that students should learn and the extent to which the topic can be represented by technologies in a pedagogically more powerful way	-Identification of content/material (IC) -Identification of learning objectives (ILO)
Analyzing Learners	Learners' difficulties in learning the attitude, skills and knowledge in regard to the topic, the usual misconceptions, and the extent to which technologies could enhance the students' learning.	-Identification of common problems with students (IPr) -Identification of students' needs (ISN) -Identification of students' interests (ISI)
Planning Instructional Activities	The specific learning practices (i.e. collaborative learning, active and constructive learning) that can be integrated and the necessary support for students to engage in the learning practices.	-Identification of teaching strategies without technology (ITwoT) -Identification of teaching strategies with technologies (ITwT)
Choosing Technology Tools	Good technology tools suitable with the pedagogical practices and good technology tools for assessing students' learning process and learning outcomes.	-Identification of the affordances of technology to solve certain problems (IAT) -Identification of the potential utilization of technology tools (IPT)

4 Findings

The following sections will discuss the teachers' consideration in integrating technology tools into their lesson plans. The findings will show how teachers articulate their ideas when designing technology-integrated lessons and what their main considerations are. Findings are organized based on the cases of each teachers.

4.1 Teacher 1

Teacher 1 always started her lesson design process by choosing topics, materials (IC), and learning objectives (ILO) in which she planned to integrate technology tools. She usually stated the language skills she was going to teach and also the teaching materials she already had from her past teaching experiences.

"This week I am going to teach listening and speaking skills…. My plan is to have my students practice some expressions of certainty, uncertainty, and ask for clarification" (LD1-AN)

"I have downloaded a video for next week. It's about an interview with a zoo keeper about Komodo Dragon" (LD3-AN)

After mentioning the material, Teacher 1 usually started to identify common problems (IPr) she usually encountered during the teaching learning process in the past. She focused on problems encountered by her students in learning certain skills or her students' attitude during the learning process.

"My students usually made mistakes in pronouncing several words such as 'certain' or 'uncertain'…. The problems are in pronunciation and intonation… when they do dialogs, they tend to have flat intonation" (LD1-AN)

"In writing activities, many students just copied and pasted texts from internet resources… they always tried to find the easiest way to finish the tasks" (LD3-AN)

She showed that she wanted to make differences in her teaching process through the integration of technology by identifying the affordances of some technology tools (IAT) and recognized the potential of the tools to be integrated in her teaching (IPT). In identifying the tools, she always related them with the problem that she encountered in her past teaching experiences. She tried to finds tools which can enhance students' learning and help her students solve their learning problems.

"I want to use Speech-To-Text apps….I think students can use their cellphone…practice themselves…if they make mistakes they can correct it themselves…or they can help each other with their friends." (LD1-AN)

"….after students write their draft, they will start creating infographics using Canva…It means… I will introduce Canva in the 3rd meeting" (LD3-AN)

Having identify the materials, problems, and technology tools, Teacher 1 wrapped up her lesson design by elaborating her stages of activities. She tried to identify which activities do not need technology (ITwoT) and which activities need to integrated with technology tools (ITwT). This highlight the facts that she beliefs that technology do not necessarily occur in all classroom activities.

"I will start with listening activities. The dialog contains expressions of certainty and uncertainty…then I will ask students to answer some questions….after I discussed the expressions, students can start practicing their pronunciation using Speech-to-Text application" (LD1-AN)

Students will be asked to write a paragraph about one of the animals…. Canva will be introduced at the end…. Let them write their draft… may be I will let them know that they will create an infographic…from the beginning" (LD3-AN)

From the excerpts above, it can be seen that there are some aspects underlying her consideration in determining the technology tools she is going to integrate in her teaching. She uses the learning objectives and the content materials to be delivered as the springboard of her lesson design activities. She also showed her expectation that technology can enhance the students' learning process and solve some problems that she encountered in her teaching experiences. When choosing technology tools, she looked at the features being offered by the tools and put her emphasis on some aspect of students' learning that she wanted to focus on. In designing her instructional strategies, she inserted the technology tools into the stages of activities that she usually did.

4.2 Teacher 2

Teacher 2 usually started her lesson design by determining the digital products she wanted her students to create. She tended to have her students create digital artifacts to demonstrate their understanding towards the materials or started her teaching ideas by choosing the technology tools (IPT) she wanted to use in her teaching processes.

"I want to try to use Padlet which was introduced in the workshop…my students will have discussions using Padlet" (LD1-NT)

"I am interested to ask my students to create video. I will use Photo Story or similar application on smart phone…I also want to use Kahoot" (LD2-NT)

"I want to try using Canva…I want my students to create digital poster". (LD3-NT)

When Teacher 2 was prompted by some questions on the objectives of using certain technology tools, or the language skills she wanted to enhance through the utilization of the tools, she, then, started to think of the affordances of the tools (IAT) in relation to the content knowledge or her teaching goals.

"oh…ya…Padlet is not appropriate for speaking…it's more appropriate for writing activity" (LD1-NT)

"Actually…I want my students to write a procedural text…but…video creation is more appropriate for speaking skills… do you think so?" (LD2-NT)

Teacher 2 always needs to be prompted with some questions, such as, "what is the objective of your teaching?", "What materials are you going to teach?" before she was able to articulate the materials she is going to cover (IC) or her teaching objectives (ILO).

"The objective of my teaching is, students will be able to create dialog which state their agreement or disagreement towards certain social phenomenon". (LD1-NT)

"I am still confused…the topic is about passive voice…there are also topics on describing food, places, and objects….the following materials is about advertisement…I think I will combine the materials about describing things and advertisement". (LD3-NT)

Teacher 2 often had difficulties to identify problems that she encountered during her past experiences of teaching. This is due to the fact that in the previous semester she did not teach the same grade. Therefore, she has no past experiences to recall and help her identify how certain technology tools might have the potentials to enhances

or support her students' learning. When designing the stages of activities, she tended to integrated many different technology tools in her instructions (ITwT).

"…so in Padlet I will post pictures, then students will determine their agreement or disagreement… then… I will ask them to take pictures or search it on the internet… they make statements of agreement or disagreement on their own pictures… they have to upload their pictures on Padlet…I want them to take real pictures…to make it authentic". (LD1-NT)

"I have a video about how to make Chocolate Lava cake…I want to use Kahoot. I mean after watching the video, they will answer comprehension questions using Kahoot…I want to make fun learning activity…. They take picture…prepare the narration…I will use Photo Story…they can record their voice". (LD3-NT)

The excerpts show that Teacher 2 focused on technology tools in her lesson design process. Departing from certain tools, she started to determine which content materials she was going to teach and how she was going to use the tools in her class. The technology tools also help her in determining her lesson objective, as she tried to make students' digital creations as her ways to support students demonstrating their language skills on the content materials being discussed.

In summary, this section shows the process of designing technology-integrated lesson plan from the case of the two teachers. Although both of them generally covered the four dimension of lesson design model [33], they have different ways of articulating their consideration in integrating technology into their lesson plan. Teacher 1 uses the learning objectives and the content materials to initiate her lesson design. She made use of some problems occurs in her teaching as the main consideration when choosing technology tools to be used in her class. Meanwhile, Teacher 2 is more interested to use technology tools as the springboard of her lesson design process. Drawing from the affordances and potential of the tools, she was able to define the teaching objectives and the students' learning outcomes.

5 Discussion and Conclusion

This study investigated teachers' consideration in choosing certain technology tools in designing technology-integrated English lessons and the extent to which technology-integrated lesson design activities support teachers in articulating their consideration. With the large numbers of technology tools available today and the promises of technology integration, such as; success, improvement, or excellence in education [5] and the development of students' higher order thinking [38] it is imperative for teachers to have the right amount of knowledge of technology and its integration in pedagogy to deliver content knowledge [39]. In planning a technology integrated lesson, it is dependent on many contextual factors such as local curriculum, students learning needs, availability of technology, as well as school and classroom context [40] Therefore, this paper examined how teachers identify the learning goals, analyze the learners, design instructional planning, and choose the technology tools appropriate for their classroom and school context.

In the identification of learning goals, the more experience teacher (Teacher1.) tends to consider the teaching objectives prior to choosing certain technology tools.

She indicated her focus on the instruction and whether she could achieve the teaching objectives [41]. She also considered the content materials and the skills she was planning to teach as the determining factors in choosing the tools. This is in line with [40] who mentioned that content often serves an 'arbiter' in teachers' decision making about the adoption of technology tools. Meanwhile, the less experience teacher (Teacher 2) required some cognitive prompts to help her activate relevant knowledge resources and blend information as the foundation to diagnose and decide appropriate learning objective of the lessons. These cognitive prompts can be the supporting factors determining teachers' familiarity with technology and the appropriateness of integration with the subject content [42]

Another factor that teachers put into their consideration when they were planning technology-integrated lessons is the learners. Learners were identified based on the common problems they usually encountered during the teaching learning process as well as their interest. Learners' interest could determine the success of the teaching as it is closely related to their motivation to learn. Chai & Koh [33] believe that reflecting on the past experience with the aims to improve the lesson was one of the means to help teachers unpack the lesson design. This is also in line with [43] which stated that teachers often use their knowledge from past personal and professional experiences to inform their instructional choices. These experiences might refer to the teachers' experiences in handling students' difficulties, and finding content materials and instructional strategies which meet the students' interests.

In designing instructional activities, both teachers tend to depart from their current teaching strategies instead of designing completely new pedagogical practices. They inserted some technology tools with the aims to enhance students' learning experiences as the result of their analysis on the learners' problems, needs, and interests. This is in line with [40] who stated that many teachers use technology because it allows them to maintain their current goals more efficiently, rather than allowing them to do something completely new pedagogically. Drawing from their pedagogical content knowledge (PCK), teachers create lesson activities and select which activities need the integration of technology tools and which activities do not need technology tools. Young teacher with better technology skills tend to use abundant of technology tools, while the more senior (experience teachers) typically focus more on subject content and instructional strategies when integrating technology. This is also evident in the study conducted by [26], [44].

Finally, from this study, it can be seen that the choice of technology tools integrated in the lesson ranged from 'technology as a tool for teaching' to 'technology as a learning activator', which is relevant to the study conducted by [41]. In choosing the tools, cognitive prompts can support teachers in identifying the affordances of technology to solve certain learning problems and identifying the potential utilization of technology tools, in a way that the emerging technology tools are pedagogically making sense to be integrated in the teaching practices.

In summary, the findings of this study have enhanced understanding of some aspects that teachers put into consideration while designing technology-integrated lessons. In identifying goals, teachers put the identification of content/materials/skills to be delivered to the students, and the learning objectives into their consideration. In

analyzing learners, teachers put the identification of common problems encountered by the students, students' needs, interests into consideration. In planning instructional activities, teachers consider the activities which need the integration of technology, and which activities which can be conducted without the integration of technology. In choosing technology tools, teachers tend to consider the affordances of technology to solve certain problems, and the identification of the potential utilization of the technology tools to be integrated in the lessons.

In addition, the findings of this study also postulate that during the lesson design activities, teachers need to be triggered by some cognitive prompts in order to support them making some decision on the learning objectives, the stages of activities, and the technology tools they need to integrate.

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