A teacher development program on CALL materials evaluation: teachers' knowledge and attitudes toward technology

Corry Caromawati

Iowa State University

Follow this and additional works at: http://lib.dr.iastate.edu/etd

Part of the Bilingual, Multilingual, and Multicultural Education Commons, English Language and Literature Commons, Instructional Media Design Commons, and the Teacher Education and Professional Development Commons

Recommended Citation


This Thesis is brought to you for free and open access by the Graduate College at Digital Repository @ Iowa State University. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Digital Repository @ Iowa State University. For more information, please contact digirep@iastate.edu.
A teacher development program on CALL materials evaluation: Teachers’ knowledge and attitudes toward technology

by

Corry Caromawati

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

Major: Teaching English as a Second Language/Applied Linguistics (Computer Assisted Language Learning)

Program of Study Committee:
Volker Hegelheimer, Co-major Professor
James Ranalli, Co-major Professor
Denise Crawford

Iowa State University
Ames, Iowa
2016

Copyright © Corry Caromawati, 2016. All rights reserved.
DEDICATION

For my mom, husband, and son
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>NOMENCLATURE</td>
<td>vii</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>viii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ix</td>
</tr>
<tr>
<td>CHAPTER I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>CHAPTER 2. LITERATURE REVIEW</td>
<td>4</td>
</tr>
<tr>
<td>2.1. Teacher development programs in CALL</td>
<td>4</td>
</tr>
<tr>
<td>2.2. Teacher’s knowledge in technology</td>
<td>6</td>
</tr>
<tr>
<td>2.3. CALL materials evaluation</td>
<td>9</td>
</tr>
<tr>
<td>2.4. Teacher’s attitude toward technology</td>
<td>12</td>
</tr>
<tr>
<td>2.5. The current study</td>
<td>12</td>
</tr>
<tr>
<td>CHAPTER 3: METHODOLOGY</td>
<td>14</td>
</tr>
<tr>
<td>3.1. Research Design</td>
<td>14</td>
</tr>
<tr>
<td>3.2. Setting</td>
<td>15</td>
</tr>
<tr>
<td>3.3. Participants</td>
<td>16</td>
</tr>
<tr>
<td>3.4. Intervention</td>
<td>16</td>
</tr>
<tr>
<td>3.5. Instruments</td>
<td>22</td>
</tr>
<tr>
<td>3.6. Data Analyses</td>
<td>26</td>
</tr>
<tr>
<td>3.7. Procedures</td>
<td>30</td>
</tr>
</tbody>
</table>
# CHAPTER 4. RESULTS

4.1. The change in Indonesian teachers’ knowledge of CALL material evaluation ........ 34
4.2. The change in Indonesian teachers’ attitudes toward technology after online TDP .... 51

# CHAPTER 5. DISCUSSION AND CONCLUSION

5.1. Discussion ............................................................................................................ 62
5.2. Limitation of the study ....................................................................................... 67
5.3. Directions for future research and practice ....................................................... 69

CONCLUSION ............................................................................................................... 71

REFERENCES ................................................................................................................. 72

APPENDIX A. IRB APPROVAL .................................................................................... 77
APPENDIX B. CALL MATERIAL EVALUATION RUBRIC .............................................. 79
APPENDIX C. CALL MATERIAL EVALUATION KNOWLEDGE (CMEK) SURVEY .... 80
APPENDIX D. ATTITUDES TOWARD TECHNOLOGY (ATT) SURVEY ....................... 81
APPENDIX E. TEACHERS’ LEARNING REFLECTIONS ............................................. 83
APPENDIX F. INTERVIEW QUESTIONS ....................................................................... 85
APPENDIX G. RATERS’ RUBRIC AND RUBRIC DESCRIPTOR ................................ 86
FOOTNOTES ..................................................................................................................... 88
LIST OF FIGURES

Figure 1. The Moodle platform of the online TDP .......................................................... 17
Figure 2. Screenshots of Module 1 including the title, sample material, and the transition question .......................................................................................................................... 19
Figure 3. Module 2 on VoiceThread including the title (top left), the framework (top right), a quality judging sample (down left) and an illustration of the material evaluation (down right) .. 20
Figure 4. The CMEK data coding on an Excel sheet .......................................................... 28
Figure 5. The procedures of the current study .................................................................. 32
Figure 6. The numbers of the qualities on the pre- and post-program survey ...................... 36
Figure 7. The CMEK demonstration of Group 1 ................................................................. 41
Figure 8. The CMEK demo of Group 2 using the rubric (right) to evaluate the material (left) ... 42
Figure 9. The CMEK demo of Group 3 using the rubric (right) to evaluate the material (left) ... 43
Figure 10. The CMEK demo of Group 4 answering the guiding questions in the rubric ......... 45
Figure 11. The change in teachers’ ATT based on the pre- and post-program ATT surveys ...... 54
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1.</td>
<td>Summary of data collection and analyses</td>
<td>25</td>
</tr>
<tr>
<td>Table 2.</td>
<td>Examples for the quantitative data analysis</td>
<td>27</td>
</tr>
<tr>
<td>Table 3.</td>
<td>The qualities of the CALL material evaluation in the pre- and post CMEK surveys</td>
<td>35</td>
</tr>
<tr>
<td>Table 4.</td>
<td>The CMEK attainment evidence from the CMEK Reflection</td>
<td>38</td>
</tr>
<tr>
<td>Table 5.</td>
<td>The teachers’ ATT based on the pre- and post-program ATT surveys</td>
<td>52</td>
</tr>
<tr>
<td>Table 6.</td>
<td>Coded excerpts from the teachers’ ATT Reflection</td>
<td>55</td>
</tr>
<tr>
<td>Table 7.</td>
<td>The CALL materials evaluation rubric for teachers</td>
<td>79</td>
</tr>
<tr>
<td>Table 8.</td>
<td>Raters CMEK rubric</td>
<td>86</td>
</tr>
<tr>
<td>Table 9.</td>
<td>CMEK rubric descriptos</td>
<td>87</td>
</tr>
</tbody>
</table>
### NOMENCLATURE

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT</td>
<td>Attitudes toward Technology</td>
</tr>
<tr>
<td>CALL</td>
<td>Computer-Assisted Language Learning</td>
</tr>
<tr>
<td>CMEK</td>
<td>CALL Materials Evaluation Knowledge</td>
</tr>
<tr>
<td>TDP</td>
<td>Teacher Development Program</td>
</tr>
</tbody>
</table>
ACKNOWLEDGMENTS

I would like to express my gratitude to numerous people who helped and supported me completing this thesis. First, I would like to thank my committee. Jim Ranalli was very patient and encouraging, and he helped me learn research and academic writing by providing me constructive feedback and valuable advice. Volker Hegelheimer was very resourceful. Denise Crawford was very supportive and encouraging.

I must also acknowledge Dr. Carol Chapelle, whose framework was used in this study, for her help and advice in the making of the evaluation rubric for teachers as well as the modules for this study. It was my honor to have this opportunity. Additionally, I would like to thank Dr. Gary Ockey for his insight in assessment especially in the making of the assessment rubric for this study, and Karina Silva for sharing her help and experience.

I also would like to thank my friends, colleagues, the department faculty and staff for making my time at Iowa State University a wonderful experience. They include Teresa Smiley, Ziwei Zhou, Mijin Jang, Idée Edalatishams, Seçil Akinci, Rebecca Bae, Clariztbel Flores, Ananda Muhammad, Sockwun Phng, Kelly Cunningham, Alaina Tuttle, Jordan Smith, Matt Baker, Sineem Sonsaat, Hyunwoo Kim, and everyone else that I cannot name one by one. I would like to express my appreciation and respect to Dr. John Levis, Dr. Barbara Schwarte, and Dr. Tammy Slater for their insightful knowledge and support for me as their student. My appreciation was also for the Indonesian community in Ames, especially Edo, ibu Evie Lee and her family, and for the participants in my study. Last but not least, I would like to thank my family especially my mom, my husband and my son. My mom, Rr. Moerdinah, always loved and supported me. Indra Wahyudi never stopped supporting and trusting me. Yehuza Len Iwayudi has always become my motivation to go through difficult times and work hard. I love you.
ABSTRACT

Teacher Development Programs (TDPs) in Computer-Assisted Language Learning (CALL) aim to develop teachers’ knowledge as well as positive attitudes toward technology. Previous studies (Chao, 2006; Hegelheimer, 2006; Liu & Kelinsasser, 2015; Rienities, Brouwer, & Lygo-Baker, 2013; Tai, 2015, 2013; Wong & Benson, 2006; Yildirim, 2000) show that teachers develop their CALL technical pedagogical knowledge through participation in CALL TDPs. In addition to the development of their knowledge, teachers also increase their positive attitudes toward technology after CALL TDPs as revealed in previous studies such as Hegelheimer (2006); Kessler (2007); Meskill, Anthony, Hilliker-VanStrander, Tseng, and You (2006); Tai (2013); and Yildirim (2000). Regarding teachers’ CALL knowledge, it is believed that teachers must have knowledge to evaluate CALL materials to prepare them to face the fast development of technology. Therefore, for the purpose of this study, an online CALL TDP focusing on CALL material evaluation-based on Chapelle’s (2001) CALL evaluation framework- was designed and delivered asynchronously through a learning management system for approximately five weeks. Eight Indonesian teachers participated in the TDP. The present study investigates the change in the participating teachers’ CALL materials evaluation knowledge (CMEK) and their attitudes toward technology (ATT) after participation in the online TDP. Data sources including pre- and post- program CMEK surveys, teachers’ learning reflections, teachers’ CMEK demonstrations, and post-program personal interviews were analyzed to examine the teachers’ change in CMEK. To investigate the teachers’ ATT change, data sources such as pre- and post- program ATT surveys, another learning reflection, and the post-program personal interviews were also used. The findings show that six participating teachers developed their CMEK throughout the online TDP. To some extent, two
teachers exhibited marginal attainment of the CMEK. These results advocate for building teachers’ awareness of the demands and aims of TDPs as well as providing more technical training to teachers with a lack of CALL experience before TDPs begin. The findings also show that of the eight teachers, only two increased their positive ATT marginally after the TDP, while the other teachers’ ATT remained largely unchanged. These results suggest that teachers’ ATT should be investigated within different attitude classifications, and/or teachers’ ATT cannot be changed in a short period of time.

Keywords: CALL, teacher development programs, teachers’ CALL knowledge, attitudes toward technology, material evaluation, teacher education in CALL
CHAPTER I. INTRODUCTION

As the use of technology is getting more common in this digital era, many educational institutions equip their teachers with computers to facilitate their instruction. Language teachers are also expected to make use of the costly equipment because it is believed that technology can facilitate language learning. As a matter of fact, the Chapelle and Grgurović (2013) meta-analysis study has shown that the use of technology in language instruction known as Computer-Assisted Language Learning (CALL) has been proved to be at least as effective as, if not more effective than, the conventional face-to-face classroom. This idea is also supported by many second language acquisition (SLA) studies which have shown that CALL can promote language learning because it offers affordances for the learning such as providing language input (Frankenberg-Garcia, 2014; Schuetze & Weimer-Stuckmann, 2013), allowing pushed output (Alastuey, 2010; Payne & Whitney, 2013), or facilitating interaction which promotes learners’ SLA (Lin, Huang, & Liou, 2013; Jin, 2013, Uzum, 2010; and Yanguas, 2010). For these reasons, CALL is considered beneficial for language learners.

Regardless of the aforementioned promising benefits of CALL, many teachers are not ready to prepare themselves for CALL integration because they think they do not have enough knowledge or skills in technology. Teachers’ knowledge is indeed important for CALL integration as their knowledge affects their attitudes toward technology (Wang, Ertmer, & Newby, 2004). Wang et al. (2004) also believe that teachers with negative attitudes toward technology are those who lack exposure to learning experiences using technology and lack understanding of the purpose of using it. Therefore, it is important for teachers to acquire more
knowledge as well as have an experience with technology as their preparation for CALL integration.

To fulfill the needs of CALL preparation for teachers, there are many CALL programs emerging to offer teachers, pre-service and/or in-service, a learning experience with technology (Hubbard & Levy, 2006). These programs are offered in various types, formal or informal, short or extended. They are purposefully aimed to give teachers an opportunity to enhance their knowledge as well as to have a hands-on experience with technology before using it in their instructional practice. The knowledge that they acquire and the experience with technology become the most important elements to prepare them to use CALL generally. Atkins and Vasu (2000) argue that teachers’ experiencing technology through a TDP demonstrate more understanding about CALL, which in turn will increase their positive attitudes toward technology. These positive attitudes are as important as the teachers’ knowledge of CALL because their knowledge and attitude both influence their level of success in integrating CALL (Atkins & Vasu, 2000; Kadel, 2005).

Teachers are aware of the importance of TDPs for their professional development. Unfortunately, many of them are unable to participate in such programs due to time and distance constraints (Nakagawa, 2010). As a result, a number of TDPs are offered online. Dede (2006) believes that training CALL teachers online allows them to access it anytime and anywhere at their convenience. This benefit ultimately reduces the cost of travel and customizes completion of course work to their own schedule and needs (Bauer-Ramazani, 2006 and Ebersole, 2004). Not only online TDPs but also face-to-face and blended ones are considered effective to enhance the teachers’ professional knowledge and skills. The effectiveness of a TDP, according to Kirkpatrick (1994), can be evaluated through four levels: evaluating reaction, evaluating
learning, evaluating behavior, and evaluating results. Because the TDP was delivered online, classroom observation is not feasible to conduct. Therefore, in this study the effectiveness of the online TDP is investigated on the second level, which examines the teachers’ change in their knowledge and their attitudes after joining a TDP. Thus, the studies that will be discussed in the next chapter focus on the change in teachers’ knowledge as well as their attitudes toward technology.
CHAPTER 2. LITERATURE REVIEW

In this chapter, a literature review of Teacher Development Programs (TDPs) is conducted. It looks at different TDPs conducted in the previous studies as well as the knowledge and/or the attitudes toward technology (ATT) investigated in the programs. Additionally, this chapter also elaborates the kind of knowledge and attitudes toward technology examined in those studies. The research questions formulated to investigate the knowledge and attitudes toward technology for the current study are also presented.

2.1. Teacher development programs in CALL

Teacher development programs (TDPs) in this study refer to what are defined by Killion (2008) as the process of learning among teachers. Since the use of technology is increasing, many TDPs offer teachers an opportunity to learn how technology can be integrated in instructional practice. To achieve this goal, these TDPs have been offered in a broad range of variations. They include one semester-long formal courses (Bauer-Ramazani, 2006; Chao, 2006; Hegelheimer, 2006; Kamhi-Stein, 2000; Kilickaya, 2009; and Yildirim, 2000), or informal courses such as those investigated in Broady-Ortmann (2002); Liu and Kleinsasser (2015); Rienties, Brouwer, and Lygo-Baker (2013); Nakagawa (2010); Sprat, Palmer, and Coldwell (2000); Tai (2013); and Wong and Benson (2006). Some TDPs employ face-to-face meetings with access to the technology as applied in Rickard, Blin, and Appel (2006) and Tai (2013). In their TDPs, some phases of teacher learning was employed. In the first phase, or earlier phase, the teachers learned from the experts and had hands-on activities with the technology. In the later phase, they were expected to apply what they had learned in the earlier phase to their instructional practice.
Some TDPs employ blended learning, the combination of face-to-face and online components, such as that found in Chao (2006), where the teachers had face-to-face meetings as well as an online component in which they communicated through a weblog. In addition to the face-to-face and blended TDPs, some TDPs are employed fully online such as those found in Nakagawa (2010), O’Dowd (2015), and Rienties et al. (2013). As mentioned earlier, the online environment provides some benefits to deal with time and funding issues. It also allows teachers to work collaboratively with people from other countries. Additionally, it gives an extra advantage to language teachers to have an access to native speakers of the language to enhance their language skills (content knowledge) while enhancing their pedagogical knowledge at the same time. Unfortunately, when the online learning is conducted in developing countries, there have frequently been technical issues and learning habit issues such as what has been found in Olesova and Meloni (2006) who conducted the study in a rural area in Siberia. In their study, the slow internet connection and the availability of hardware and software became crucial issues slowing down the teachers’ performance in completing the tasks assigned to them in the phase where online component was highly demanded. Additionally, the shift from a teacher-centered approach to a student-centered approach also affected the participating teachers’ performance, especially those who were used to relying on their instructors for their learning. These teachers did not achieve the best learning outcomes as expected. Of course, there are no perfect designs for TDPs. However, if the TDPs achieve their main goals, they are likely to be considered beneficial both by the participating teachers and the TDP designers. Unfortunately, sometimes teachers fail to gain the awareness of what the TDPs expect them to do and what the TDPs aim for. In general, the main goal of TDPs as a process of learning for teachers is developing teachers’ knowledge to make them better instructors for their students. In regard to teachers
integrating technology, the term \textit{knowledge} is broad. The following subsection will discuss the scope of knowledge in CALL.

\textbf{2.2. Teacher’s knowledge in technology}

According to Hubbard and Levy (2006), even though \textit{knowledge} commonly differs from \textit{skills}, they are both frequently used to describe a “can do” ability because somehow the knowledge shifts from declarative (knowledge) to procedural knowledge (skills). Therefore, many TDPs use the term \textit{knowledge} to describe their learning objectives (Liu & Kleinsasser, 2015; Rienties et al., 2013; and Tai, 2013). Hubbard and Levy (2006) also mention that there are two main types of knowledge: \textit{technical} and \textit{pedagogical}. The literature frequently calls the former \textit{technological knowledge} (cf. Koehler & Mishra, 2009) and the latter \textit{pedagogical and content knowledge} (cf. Shulman, 1986). In the field of Computer-Assisted Language Learning (CALL), technical knowledge is defined as teachers’ understanding and ability to use computer system including peripheral devices with regard to hardware, software, and networking, while pedagogical knowledge is defined as teachers’ understanding and ability to use computers to teach language effectively (Hubbard & Levy, 2006, p. 16).

In the digital era, technical knowledge is necessary for teachers. Therefore, TDP designers need to help teachers develop it. However, technical knowledge will be less useful if teachers are incapable to apply it to provide effective instructions for their students. For this reason, many TDPs focused on developing teachers’ technical pedagogical knowledge as a combination instead of the technical knowledge solely. Previous studies examined the development of teachers’ technical pedagogical knowledge when learning how to use certain technology to integrate into instructional practice such as WebQuest (Chao, 2006), Wikis and
blogs (Haines, 2015), Personal Digital Assistants/PDAs (Wishart, 2008), or interactive whiteboards (Whyte, Schmid, van Hazebrouck, Thompson, & Oberhofer, 2014). Some other studies have included a range of technologies to learn for future technology integration. Tai (2013), for example, included 40 technologies such as Google sites, iPad apps, Blogger, and Spelling City in her TPACK-in-action workshop for the Taiwanese participating teachers. The findings in her study and the above studies showed that the participating teachers increased their technical and pedagogical knowledge after the TDPs.

Providing teachers an opportunity to experience technology first hand before integrating it is considered beneficial for their technical and pedagogical knowledge development. Unfortunately, according to Butler-Pascoe’s (1995) survey, many teachers who learned technology in TDPs mostly did not continue practicing the knowledge that they had acquired because these programs only offered them access to the technological resources for the duration of the programs or for some limited time, and they did not have the same amount of access to those resources as soon as the TDPs were over. For example, teaching teachers to use iPads (Tai, 2013), interactive whiteboards (Whyte et al., 2014), and PDAs (Wishart, 2008) will not be feasible for teachers who work for schools who do not provide the technologies even after the TDPs are over. Therefore, Robb (2006) argues that TDPs must go beyond teaching teachers the most current technology to ensuring that they can act independently to be able to apply new technologies to their instruction. Consequently, it is important to shift the focus of TDPs from technical to pedagogical knowledge (Reinders, 2009).

For the aforementioned reasons, some projects employed in the previous studies were aimed to develop teachers’ knowledge by discussing and solving technical and pedagogical issues. These communities shared ideas related to technical and pedagogical matters through
discussion (Broady-Ortmann, 2002; O’Dowd, 2015; Rienties et al., 2013) and novice-expert collaboration (Wu et al., 2014). Some other studies looked at the teachers’ knowledge development through novice-expert mentoring such as that of employed in Meskill et al. (2006). All of these studies found that teachers increased their technical and pedagogical knowledge by discussing and sharing ideas with other teachers. Additionally, the novice teachers in Meskill et al. (2006) valued the feedback from the expert teachers whom they considered to contribute to their knowledge development.

While the studies discussed above showed the development of the teachers’ knowledge throughout the projects that they employed, the German language teachers in Broady-Ortmann (2002) perceived their unsuccessful knowledge development throughout the program offered by the Goethe Institute. Broady-Ortmann (2002) concluded that this perceived failure was due to the mismatch between the program designers’ expectation and that of the participants’. The participants in this study expected to develop more technical knowledge, whereas the program designers expected them to develop their pedagogical knowledge to meet the National Standard of Teaching Foreign Languages. This mismatched perception happened because the teachers were not aware of the course objective. Additionally, they also had to deal with some technical problems that caused some frustration and made them think that the TDP did not help them enough with the technical knowledge. These teachers focused more on developing their technical knowledge, which is more employable. This finding was concerning because it indicated that the teachers disregarded the fact that technology is changing and getting more advanced. To deal with this change and advancement of technology, Warschauer (2002) suggests that teachers should have effective strategies for evaluating and adapting tremendous new technology that keeps coming. Additionally, Chapelle and Hegelheimer (2004) also mention that it is crucial for
teachers to know how to search, evaluate, and re-purpose CALL materials. Furthermore, Levy and Stockwell (2006) believe that “a suitable pedagogy for language teachers is devised to ensure that the CALL materials are used in an appropriate, principled, and effective way.” (pp. 2-3). Therefore, TDPs should help teachers develop the knowledge of CALL materials evaluation.

2.3. CALL materials evaluation

According to Tomlinson (2003), materials evaluation is defined as a process to measure the qualities (or potential qualities) of a set of learning materials. In this study, the materials refer to CALL materials. The term CALL materials itself is used to include a wide range of CALL artifacts or products that language teachers and/or designers create using technological resources (Levy, 1997). However, for the purpose of this study, the materials evaluated were web-based CALL materials. These sites commonly include activities and resources ranging from the quick and simple such as multiple-choice questions to the more complex ones that include multimodality (Levy & Stockwell, 2006). As the more common use of Web 2.0, web-based teaching materials are becoming more available to language teachers. Their availability makes teachers’ lives easier as they do not need to spend their time designing materials. However, not all web-based materials are appropriate for all kinds of contexts. As a consequence, teachers need to have an ability to select or even reject the use of the CALL materials in their instruction, and they need to have a rationale for doing so (Levy & Stockwell, 2006).

There are some techniques applied to evaluate CALL materials. The techniques of checklists and surveys have been commonly used since the 1980s. However, these techniques are more often applied by teachers who are also the designers of the CALL materials. They use the information from the evaluation to improve their materials (Levy & Stockwell, 2006). For
teachers who play roles as users of the materials, using a framework for evaluating materials is considered very useful to help them decide whether or not the materials are suitable for their target learners. One of the most coherent and sophisticated frameworks in CALL was developed by Chapelle (2001). The design of her framework is to ensure that the materials and the tasks involving them provide the best conditions for second language acquisition (SLA) to the language learners. These conditions are called the criteria or qualities. In this study, the term qualities is used. There are six qualities in the framework: Language Learning Potential, Meaning Focus, Learner Fit, Authenticity, Positive Impact, and Practicality. Investigating these qualities is important to ensure the best conditions for the learners’ SLA process, which is the ultimate goal of using the materials.

The first quality of the framework, Language Learning Potential, is the quality investigating the conditions of CALL materials to provide an opportunity for SLA based on the cognitive and interactionist SLA theories. In other words, this quality looks at the potential of learning a new language feature or skills as well as an opportunity for interactions, either human-computer or human-human interactions. These conditions are believed to provide a task which focus on form. Skehan (1998) believes that the idea that a focus-on-form task should be completed within a meaning-focused task. Therefore, the second quality of Chapelle’s (2001) framework is Meaning Focus. This quality looks at whether or not CALL materials direct the language learners’ attention to the meaning of the language, not only the forms. For example, when completing a task on present progressive, learners need to get the idea that it is used for describing ongoing actions instead of merely changing the verb into the –ing forms.

The next quality is Learner Fit. This quality looks at the appropriateness of CALL materials for a particular group of learners by considering their linguistic and non-linguistic
characteristics. This quality expects CALL materials and tasks to be challenging enough to develop their knowledge but not too difficult. Additionally, CALL materials and tasks also need to be appropriate according to the target leaners’ cultures and/or other characteristics such as their learning habits. Authenticity is the quality referring to the degree of how much the language on the materials and the tasks conducted in class relate to the target learners’ real situation outside the classroom. Positive Impact refers to the benefits earned by the learners beyond the language learning. These benefits include learning new content knowledge, intercultural knowledge, or a new learning strategy. The last quality, Practicality, looks at the availability of technical resources such as software, hardware, and any other technology-related tools that will make the CALL task feasible to execute. Additionally, the teacher’s knowledge of how to use the CALL material itself is urgently needed. Thus, teachers must bear in mind that to execute the tasks in CALL materials, they need to have technical support as well as technical knowledge of how the materials/tasks are used in the classroom.

As it gives teachers guidelines for what to investigate in CALL materials and is strongly based on SLA theories, this framework is important to help teachers evaluate CALL materials less subjectively and in a more principled, systematic and reliable way, as suggested by Tomlinson (2003). However, to date, there is no study found on TDPs focusing on the development of teachers’ knowledge of CALL material evaluation. Therefore, this study would be among the first that investigated the change in teachers’ knowledge on CALL material evaluation throughout a TDP.
2.4. Teacher’s attitude toward technology

For the purpose of an effective technology integration, in addition to teachers’ knowledge, their attitudes toward technology also play important roles. Teachers with positive attitude toward technology (ATT) tend to integrate technology in their classrooms more successfully (Kadel, 2005). Therefore, it is considered important to increase teachers’ positive ATT to prepare them for effective CALL. Teachers participating in TDPs that involve technology increase their positive ATT as they are exposed to learning experience using technology (Olesova & Meloni, 2006). Therefore, Wang et al. (2004) believed that teachers who do not have enough learning experience using technology tend to have negative ATT. Studies such as Tai (2013); Hegelheimer (2006); Yildirim (2000); Wong and Benson (2006) have provided evidence that teachers increase their positive ATT after their participation in the TDPs. In these studies, the teachers developed their confidence in using technology that make them gain more positive ATT. In addition to the aforementioned studies, Kessler (2007) examined the teachers’ perception of the increase of their own ATT after both formal and informal TDPs. In his study, the teachers perceived their positive ATT had increased after the TDPs, especially the informal ones.

2.5. The current study

A survey conducted by Son, Robb and Charismiadji (2011) found that Indonesian teachers lacked hands-on experience with technology that made them unprepared to integrate CALL. Therefore, they suggested that teachers in Indonesia’s context needed to have an opportunity to directly experience technology before CALL integration. However, as discussed earlier in this chapter, developing only teachers’ technical knowledge is not what the teachers
need for effective CALL integration. They need to develop their technical pedagogical knowledge and positive attitude toward technology which should become the focus of TDPs designed for the teachers in this context.

Looking at the effectiveness of an online teacher development program in developing Indonesian teachers’ CALL knowledge, specifically CALL material evaluation, as well as increasing their positive attitudes toward technology, this study seeks answers to these two research questions:

1. How did Indonesian teachers’ knowledge of CALL material evaluation change after an online TDP?

2. How did their attitudes toward technology change?
CHAPTER 3: METHODOLOGY

This chapter discusses the research design, setting, participants, intervention, instruments, data analysis, and procedures of this study. Each subsection discusses this information consecutively: the research methods, the target institution, background info of the teachers, the designed TDP, data collection instruments, the procedures on how the TDP was conducted and the data were collected for the current research project, and how the collected data were analyzed.

3.1. Research Design

This study applied a mixed methods research design using triangulation as the data analysis method. A mix of qualitative and quantitative data were obtained from multiple sources and analyzed to answer the research questions and provide multiple perspectives on the problem (Cresswell & Plano Clark, 2007). The quantitative data were collected through the attitudes toward technology (ATT) surveys which consisted of 11 five-point Likert items. The qualitative data, on the other hand, were collected through the pre- and post-program surveys of the CALL Material Evaluation Knowledge (CMEK), two teachers’ reflections, participants’ material evaluation demos, and interviews. Coding was employed for the qualitative analyses. As defined by Creswell (2013), “coding is the process of organizing the material into chunks or segments of text and assigning a word or phrase to the segment in order to develop a general sense of it” (p. 241). In this study, the coding was conducted to sort data from the teachers’ responses in the pre- and post-program CMEK surveys, ATT Reflection, CMEK Reflection, and the teachers’ CMEK demos. Additionally, it was also applied to the data from the interviews to investigate whether or not the teachers indicated the change in their knowledge and attitudes toward technology. Since
the data was analyzed both inductively and deductively, some emerging themes were expected to come out of it. When some themes emerged, the data was investigated further to find more evidence for emerged themes. Thus, as Creswell (2013) states, “While the process begins inductively, deductive thinking also plays as an important role as the analysis moves forward.” (p. 186)

To answer the first research question, the results from qualitative data from the Pre- and Post-program CMEK surveys, CMEK Reflection, teachers’ demos, and interviews were analyzed and triangulated to better understand the change of the teachers’ CMEK. For the second research question, the results from quantitative data (pre- and post-program ATT surveys) and qualitative data from the ATT Reflection, and interviews were analyzed and triangulated to better understand the change of the Indonesian teachers’ change in their ATT.

3.2. Setting

The setting of this study was a private university located in Bandung, West Java, Indonesia. This university was where the participants taught English as a Foreign Language at the time when the study was conducted, and when the TDP was delivered online. The university offered programs of engineering and design studies and had approximately 5000 students. These students were required to take two English courses, English 1 in their first or second semester and English 2 in their third or fourth semester. The English courses met twice a week both in a conventional classroom and in a language laboratory. The language laboratory was equipped with computers, servers, projectors, laptops, learning software, and other technological tools to support the language instruction. These tools and applications, unfortunately, were not practically used due to the lack of knowledge of the teachers. Consequently, they were stored in
the storage room and remained unused. The teachers used conventional teaching methods similar to their practice in the regular classroom meetings. Therefore, there was no significant difference between the instructions in the regular and laboratory meetings. This fact prompted the institution to send the fulltime English teachers to attend professional development opportunities in CALL such as workshops, conferences, or in my case, a course of study in the USA. The expectation was to increase the full-time and part-time teachers’ knowledge and skills to make use of the technology that the institution had provided. There were five full-time lecturers and more than fifteen part-time lecturers who needed to develop their CALL knowledge. The current study's participants were drawn from this group of part-time instructors.

3.3. Participants

The participants voluntarily taking part in this study were eleven part-time English lecturers at the target institution who also taught English at other institutions in Bandung. These lecturers consisted of six males and five females who had different educational backgrounds ranging from Masters to PhD in different fields of study such as linguistics, education, and cultural studies. Most of them had practical experience in teaching English but different amounts of experience with TDPs and CALL in their instructional practices. By the end of the TDP, three participants dropped out due to personal issues that prevented them from participating. Thus, eight (8) participants, consisting of four males and four females, remained until the end of the TDP.

3.4. Intervention

The TDP was conducted fully online and integrated the use of applications and activities that allowed the participants to have hands-on experience with CALL. The main aim of the TDP
was to enhance the participants’ knowledge and skills of web-based CALL material evaluation based on the Chapelle (2001) framework. The applications used were Moodle as the learning management system (LMS), VoiceThread, and web-based CALL materials. VoiceThread is a Web 2.0 application, developed by Papel and Muth in 2007, that facilitates discussions and collaborations centered around images, presentations, documents, and videos (Nakagawa, 2010). VoiceThread was selected for this project due to its free access and its presentation features. Moodle was selected based on its free access and its practicality for managing courses. As shown on Figure 1, Moodle allowed for the arrangement of sets of materials and tasks. These materials and tasks were arranged by week. Considering the management’s progressing plan to integrate Moodle in the institution in the near future, its employment in this TDP would help the participating teachers learn how to use Moodle as students, which would help them use it as teachers later. The selection of web-based CALL materials used in the TDP was taken from Chapelle and Jamison (2001).

Figure 1. The Moodle platform of the online TDP
The learning model applied in this TDP was cognitive apprenticeship (Collins, Brown, & Newman, 1989). This learning model, also used in Chao (2006), involves the following teaching methods: *modelling, coaching, scaffolding, articulation, reflection, and exploration*. These methods shift from teacher-centered approached to students-centered approached. *Modelling* is given when a more experienced person carries out a task so that participants can observe and build their conceptual model of the processes to help them accomplish the target task. *Coaching* involves the performance of observing the participants while they perform a task and the performance of offering hints, modelling, reminders, and new tasks in order to enable them to perform the task closer to what is modelled. *Scaffolding* is providing supports to the participants to assist them in carrying out a task. *Articulation* is anything used to get participants to recall their knowledge, reasoning, or problem-solving processes in a context. *Reflection* refers to participants’ comparing their own problem-solving processes with those of an expert or another student, and eventually building an internal cognitive model of expertise. *Exploration* is the act of pushing the students into a mode of problem solving on their own with little or no support from the facilitator. The application of this learning model in this study will be described as follows.

*Modelling*

Module 1 and Module 2 were used to deliver content knowledge, including examples to provide models to the participants. The making of these modules was mostly done in consultation with Dr. Chapelle whose framework served as the basis of this TDP. The final versions of these two modules were posted on VoiceThread. Their detailed contents will be described below.
Module 1

As shown in Figure 2, Module 1 was a VoiceThread presentation, which can be accessed at [https://voicethread.com/myvoice/#thread/7135043/37983981/39168430](https://voicethread.com/myvoice/#thread/7135043/37983981/39168430). It consisted of 17 slides voiced over, providing information on some examples of CALL integration as well as different types of CALL materials such as content, process, or both (Reinders & White, 2010). According to Reinders and White (2010), content materials refer to teaching materials that serve as sources of information and data, and process materials refer to materials that provide outlines of activity. As a matter of fact, CALL materials - including web-based materials- can be found as content or process materials, or both. This initial overview provided the foundation and shared
vocabulary needed for later CALL material evaluation. In addition to this information, a web-based CALL sample resource was also introduced and described in this module. This material, retrieved from www.5minuteEnglish.com, provided a reading text and task and was later used in the second module as a model for applying the CALL material evaluation framework. At the end of the module, the participants were asked whether or not using CALL was effective. This provoking question was aimed at arousing the teachers’ interest in the CALL material evaluation framework discussed in the next module.

Module 2

Figure 3. Module 2 on VoiceThread including the title (top left), the framework (top right), a quality judging sample (down left) and an illustration of the material evaluation (down right)

As illustrated in Figure 3, the second module (available at https://voicethread.com/myvoice/#thread/7257252/38783504/39973444) discussed the CALL
material evaluation framework including the qualities and the guiding questions for evaluating each quality. Additionally, it provided a material evaluation demonstration from the facilitator. The material used for the material evaluation demo was the same that had been introduced in the first module. The modelling and demonstration of CALL materials evaluation involved a rubric that was created for the purpose of this research project (Appendix B). The rubric contained the six qualities of the CALL material evaluation framework, the guiding questions to evaluate each quality in the materials, and scoring scales ranging from 1 to 3 for each quality. The overall judgment made by the teachers in the rubric was used to judge the appropriateness of the material. The content of this module was based on Chapelle (2001), and the rubric was created based on Dr. Chapelle’s personal advice through consultation.

Coaching and scaffolding

In this study, coaching and scaffolding methods were conducted simultaneously. The facilitator observed how the teachers carried out the tasks in Moodle and sent hints or reminders through personal chats in WhatsApp when they did not complete the tasks as expected such as not answering the questions in the discussion forum or providing off-topic responses to the questions in the forum. The personal chats were chosen as the mode to send these hints and reminders in order to prevent any personal psychological effect, such as embarrassment, to the participating teachers. Some support was provided when teachers reported issues that they were facing and what they needed to solve the problems. For example, when one of the teachers had not answered the questions in the discussion forum, the facilitator asked her whether she had any issues in understanding the questions or any other type of issues. She admitted that she did not know how to access the VoiceThread even though she had the tutorial that the facilitator had
provided at the beginning of the TDP. It appeared that her internet browser did not support the website. Consequently, the facilitator created two different versions of the first and the second module for her for the purpose of scaffolding.

*Articulation and reflection*

Articulation and reflection methods were also conducted at the same time in this study. The discussion forums were created for the purpose of articulation. In each forum, the teachers were asked to answer questions to recall their knowledge in their context, and they were also assigned to comment on their peers’ posts to express their ideas. Their cognitive processes were recorded in the teachers’ learning reflections, in Google Forms, as a think aloud protocol. The information from this method was used as one of the data sources for this research project.

### 3.5. Instruments

Different instruments were created and used to collect data for analysis, including surveys, learning reflection questionnaires, participants’ CMEK samples, and interview guides. Each will be described separately.

#### 3.5.1. Surveys

There were two surveys administered in this study: the CALL Material Evaluation Knowledge surveys and attitudes toward technology surveys. These surveys were deployed through Google Forms.

*The CALL Material Evaluation Knowledge (CMEK) survey*

The purpose of the CMEK survey was to understand the current state of the participating teachers’ knowledge of the qualities to evaluate CALL material appropriateness in the Chapelle
(2001) framework at the time the teachers filled out the questionnaire. The survey consisted of an open-ended question requiring the teachers’ to elaborate on the factors (qualities) to investigate when evaluating CALL materials (see Appendix C). Prior to this study, the question was piloted to five Indonesian teachers who were not familiar with CALL. The survey was conducted before (pre) and after (post) the TDP to measure change in the participants’ knowledge.

**The Attitudes toward technology (ATT) survey**

This survey instrument aimed at obtaining information about the teachers’ attitudes toward technology. The survey contained 11 items using a five-point Likert scale (see Appendix D) with “1 Strongly Disagree” to “5 Strongly Agree”, adapted from Kessler (2007). Five items in the survey indicate positive ATT (items 3, 4, 9, 10, and 11). Item 3, for example, states “computers should be as important and available to the students as pencils and books”. Six of them indicate negative ATT (item 1, 2, 5, 6, 7, and 8). For instance, item 6 states, “I do not believe the quality of English education is improved by the use of technology.”

### 3.5.2. Learning reflections

The two learning reflections in this study allowed the participating teachers to write about their learning processes after each input session. These two reflection forms were adapted from Tai (2013). In this study, however, only used the open-ended questions. These questions were designed to allow the teachers to report their internal cognitive process without being limited by specific questions (Mackey & Gass, 2005). There were two reflections: the ATT Reflection and CMEK Reflection after completing the tasks on Moodle. The ATT Reflection was distributed at the end of the first session of the TDP, and the CMEK Reflection was delivered after the second session of the TDP. Both learning reflections required the teachers to recall what they had
learned and what else they wanted to learn in the future regarding the topic discussed in each session (see Appendix E).

3.5.3. The teachers’ CALL material evaluation demonstrations

In the third week of the TDP, the participating teachers working in pairs were assigned to choose a CALL material from the CALL material lists provided in Moodle and evaluate it using the framework. Their course assignment was recorded in either VoiceThread or Screencast-O-Matic to be later submitted into Moodle. These demos provided information on the teachers’ procedural knowledge of the CMEK that they had attained earlier in the TDP. Skehan (1998) believes that learners’ task performance can give the teacher an idea of their constructs.

3.5.4. Interviews

Interviews can help researchers to investigate events that cannot be observed directly such as one’s self perceptions or attitudes (Gass & Mackey, 2005). Gass & Mackey (2005) also believe that another benefit of interviews as an interactive process is giving opportunities to complete incomplete information or clarify some unclear statements.

Individual structured interviews were conducted after the online TDP was completed and were scheduled based on the participants’ availability. The medium used for the interviews was a mobile chat application, WhatsApp, which also allows for voice chat. The questions during the interviews sought information regarding the change in the teachers’ CMEK and ATT from the teachers’ own perspectives (see Appendix F for the interview questions). Each interview lasted roughly 10 to 15 minutes using the participants’ native language (Indonesian). The conversations were recorded with Audacity.
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Instruments</th>
<th>Data Types</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ 1</td>
<td>The CALL Material Evaluation Knowledge survey, developed for the current study</td>
<td>One open-ended question</td>
<td>Qualitative data from pre- and post-program surveys: qualitative coding, i.e. the qualities of the CALL materials were coded based on the framework</td>
</tr>
<tr>
<td>RQ 1</td>
<td>The Attitudes toward Technology survey, adopted from Kessler (2007)</td>
<td>11 items using a five-point Likert scale</td>
<td>Quantitative data from pre- and post-program surveys: Descriptive statistics, i.e., mean, standard deviation were calculated</td>
</tr>
<tr>
<td>RQ 2</td>
<td>ATT Reflection created in Google Forms</td>
<td>Four open-ended questions</td>
<td>Qualitative data: qualitative coding, i.e. the teachers’ responses were analyzed, some excerpts were coded to indicate their attitudes toward technology (ATT) to be either positive or negative</td>
</tr>
<tr>
<td>RQ 1</td>
<td>CMEK Reflection created in Google Forms</td>
<td>Two open-ended questions</td>
<td>Qualitative data: qualitative coding, i.e. the change of the participants’ CMEK was interpreted and the qualities of the CALL materials were coded based on the framework</td>
</tr>
<tr>
<td>RQ 1</td>
<td>The participating teachers’ CALL material evaluation demonstration</td>
<td>VoiceThread presentations or Screencast-O-Matic videos</td>
<td>Qualitative coding: The data were assessed using the teachers’ CALL material evaluation rubric which falls the teachers’ performance into three bands: non understanding, partially understanding, and fully understanding</td>
</tr>
<tr>
<td>RQ 1 &amp; RQ 2</td>
<td>Individual interviews</td>
<td>Audio files recorded using Audacity</td>
<td>Qualitative data: The audio files were transcribed, translated into English (when needed), and analyzed inductively and deductively</td>
</tr>
</tbody>
</table>
3.6. Data Analyses

As previously mentioned, this study applied both qualitative and quantitative methods. To analyze the qualitative data, coding was employed. In the qualitative coding, the data from the instruments were analyzed, filtered and interpreted to match with the qualities of the framework. The quantitative method included descriptive statistics of the participants’ responses to the ATT surveys Likert scale items. These two methods, however, were employed and mixed differently in answering each research question. Table 1 provides a summary of the instruments used for data collection, the types of the data gathered, and how they were analyzed. Detailed information about how the data were analyzed is provided in the subsections below.

3.6.1. Quantitative data

As discussed previously in this chapter, the quantitative data were gathered only from the ATT surveys. Some of the items lean toward positive ATT (items 3, 4, 9, 10, and 11) and some toward negative ATT (items 1, 2, 5, 6, 7, and 8). Therefore, in the data analysis the positive items were given the score according to the scale chosen by the teachers. By contrast, responses to negative items were inverted on the scale. In other words, the responses 1, 2, 3, 4, and 5 were given scores of 5, 4, 3, 2, and 1 respectively. Table 2 provides an example for how the quantitative data was analyzed to come to some findings. The mean and standard deviation were calculated based on the scoring procedure discussed earlier.
Table 2. Examples for the quantitative data analysis

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Technology makes my professional work more difficult.</td>
<td>4 Agree</td>
<td>2</td>
</tr>
<tr>
<td>2. Using computers for learning takes students away from important instructional time.</td>
<td>4 Agree</td>
<td>2</td>
</tr>
<tr>
<td>3. Computers should be as important and available to the students as pencils and books.</td>
<td>4 Agree</td>
<td>4</td>
</tr>
<tr>
<td>4. I am confident that using technology as a learning resource.</td>
<td>4 Agree</td>
<td>4</td>
</tr>
</tbody>
</table>

3.6.2. Qualitative data

The qualitative data gathered from the CMEK surveys, ATT Reflection, CMEK Reflection, the teachers’ CMEK demos and the interviews were analyzed and coded qualitatively. The raw data from the CMEK surveys and ATT Reflection were segmented into units of analysis before coded. Different coding techniques were applied to each data gathered from each data source, involving two coders. Coding of the CMEK surveys was employed to match the teachers’ segmented units with the qualities in Chapelle’s (2001) CALL material evaluation framework. One example of the coding was when Teacher 5 wrote, “the materials should meet the students’ needs and ability.” Her statement was interpreted and classified into the ‘Learner Fit’ quality of the framework. As shown on Figure 4, the excerpts from the teachers’ segmented responses were copied to an Excel sheet and then interpreted to look at their potential connection to the qualities of the framework. In addition to the six qualities of the framework, the coders also had an option to use U/C (unclassified) for excerpts that did not match any qualities. As previously mentioned, Coding was performed by two coders whose inter-coder agreement was 0.9 in the coder training.
Figure 4. The CMEK data coding on an Excel sheet

The teachers’ segmented responses on the ATT Reflection were coded to indicate their positive or negative ATT. The data from the CMEK Reflection was interpreted and coded to indicate whether the teachers attained the CMEK after the second session. The teachers’ CMEK demos were assessed using the raters’ CMEK rubric (Appendix G) to measure their CMEK to be classified into three bands: non-understanding (NU), partially understanding (PU), and fully understanding (FU), with the reference to the descriptors provided. Finally, the individual interview data were transcribed, translated into English, and later analyzed inductively and deductively. Inductive data analysis is the process where the researcher working back and forth with the data and the themes until some comprehensive themes are established and deductive thinking involves further processing to find more evidence to support the themes (Creswell, 2013). The results were later compared to the results from the data analyses of other data sources for triangulation. As stated by Gass & Mackey (2005), triangulation is most commonly defined as “the use of multiple sources of data in order to explore issues from all feasible perspectives” (p. 181).

Research question 1: How did Indonesian teachers’ knowledge of CALL evaluation change after participating in an online TDP?

The first research question sought information on the change in the Indonesian participating teachers’ knowledge of how CALL materials are evaluated, based on Chapelle’s
(2001) framework, after they joined the online TDP. In other words, this question was used to measure the teachers’ knowledge attainment throughout the TDP.

To answer this research question, the coded data were later transformed into a plus (+) and minus (-) formats. A plus (+) indicated the present of the quality in the teachers’ responses, and (-) indicated the absence of the quality. The total number of the qualities indicated in the teachers’ responses before and after the TDP were compared to indicate the change in the teachers’ CMEK. The findings from these data analyses were later triangulated with the findings from the data analyses of the CMEK Reflection, teachers’ CMEK demos, and interview sessions.

**Research question 2: How did their attitudes toward technology change after participating in an online TDP?**

The second research question sought information on how the teachers’ attitudes toward technology (ATT) changed after their participation in the TDP.

To answer this research question, the results from the data analyses of the pre-program ATT survey were compared to those from the post-program ATT survey. The teachers’ mean score indicated the tendency of their ATT to either positive or negative. If the score was higher than the mid-point (2.5), it meant the teachers’ ATT tendency was positive. The closer their mean was to 5, the more positive their ATT. The standard deviations, on the other hand, were used as an indication of whether the teachers had consistent attitudes according to the items in the survey questions. The bigger the standard deviations, the less consistent their ATT was. Lower ATT consistency became an indication that their ATT was not as positive or negative as it was shown by their mean numbers. For example, if a teacher had an ATT mean score of 4 and standard deviation score higher than other teachers, it means that he had a tendency toward
positive ATT, but his positive ATT did not distribute well across the 11 items. It means that regardless of his positive attitudes, he had some negative attitudes toward some certain conditions.

The results from the ATT surveys were triangulated with findings from the ATT Reflection and interviews to better understand the change in the teachers’ attitudes toward technology (ATT).

3.7. Procedures

The procedure of the present study is illustrated in Figure 5. As seen in the figure, the data collection including the online TDP lasted approximately six weeks, starting from January 4, 2016 to February 13, 2016. A course page on Moodle was created by the English department Moodle team of Iowa State University shortly after the proposal of the study was approved by the IRB in November 24, 2015 (Appendix A). The participant recruitment was proceeded by contacting the lecturer coordinator of the institution to recruit volunteers from the lecturers. There were initially fifteen teachers who agreed to join the program, but only eleven lecturers responded to the email correspondence, among whom only eight completed the TDP and included in the study.

During January 4 – 9, 2016, Week 1, the following activities were carried out. First, a group in WhatsApp was created as the means to coordinate with the teachers throughout the program. This group was beneficial because it allowed for more synchronous interaction with the participants. Second, the pre-program CMEK survey and the ATT survey were distributed online in Google Forms. Next, the participant training, including a step-by-step tutorial, in using
Moodle and VoiceThread was conducted through WhatsApp chats as well as email correspondence.

The online TDP was started in Week 2, January 11-17, 2016, when the cognitive apprenticeship teaching model was begun. The modeling was performed in a VoiceThread presentation called Module 1, discussed earlier under the intervention. Coaching and scaffolding methods were performed in Moodle and the WhatsApp group. Another form of Module 1, using the same Power Point file and voiced over as that of in VoiceThread, was sent to the participants’ email to help one of the participants who had an issue with the access to the original module. As soon as they had watched Module 1, the participants were assigned questions to answer in the discussion forum in Moodle. These questions were used for the articulation method and aimed to get the teachers recall to their knowledge of CALL materials. They were also asked to respond to their peers’ responses to compare their learning process with their peers for the reflection method. Additionally, they were asked to recall what they had learned in Week 1 by answering some open-ended questions in the ATT Reflection while they were listing some CALL materials that they were familiar with into a WIKI page provided on the TDP Moodle page.

In Week 3, January 18-24, 2016, the learning focused on the CALL material evaluation. Applying the same learning model as in the previous week, the teachers were assigned to access, listen and watch Module 2. Coaching and scaffolding methods were carried out in the same way as the previous week. However, the solution to the technical issue with the VoiceThread accessibility was using Screencast-O-Matic to create a screen-capture video using the same slides in VoiceThread. The articulation method was conducted in the discussion forum. The participants were also divided into two groups to practice with the CALL material evaluation based on Chapelle’s (2001) framework proposed in this study. This group work would allow
Figure 5. The procedures of the current study
them to compare their material evaluation as needed for the reflection method. Additionally, the participating teachers were also required to answer a questionnaire as their CMEK Reflection to reflect their cognitive process from the TDP in this particular week.

Even though the support from the TDP facilitator was provided less in the exploration method, IT personnel in the institution was ready to help the participants to deal with technical issues. Reminders were sent and assistance were offered through the WhatsApp group and personal chats. During this period of time, the participants were also required to complete the post-program CMEK and ATT surveys as well as provide information on their availability to conduct a one-on-one interview through WhatsApp voice chat. The interview schedule was created in Doodle.

During January 25-31, 2016 (Week 4) the participants were divided into five groups: four groups were pairs and one group was a group of three. These five groups were assigned to choose one of the CALL materials provided in the Moodle page and then to create a demonstration of CALL material evaluation using Power Point, VoiceThread, or Screencast-O-Matic. This demonstration was the exploration method for understanding the CALL material evaluation knowledge further. Thus, the support from the facilitator was provided in a very limited amount. In their demo, the participants were asked to describe the material that they had chosen from the list, the target students, and their judgment on each quality of the framework based on some clues that they found in the material. To complete this assignment, they were required to use the evaluation rubric as their evaluation guidelines. As illustrated in Table 5, this assignment was completed in three weeks, which was two weeks extended from the original plan.
CHAPTER 4. RESULTS

This chapter reports the results from the data analyses of the eight participating teachers. However, the data from Teacher 8 was incomplete because he failed to respond to the ATT and CMEK Reflections.

4.1. The change in Indonesian teachers’ knowledge of CALL material evaluation

The first research question focused on the teachers’ knowledge of CALL material evaluation, which was the main content delivered in the online TDP. There were four data analyses to investigate how the knowledge changed after the TDP: the teachers’ responses in the pre- and post-program CMEK surveys, the teachers’ CMEK Reflection, the teachers’ CMEK demonstrations, and the teachers’ own perspectives regarding their CMEK and ATT recorded from the interview sessions. Each will be presented and discussed respectively, and will be integrated to form a comprehensive answer to the research questions in the Discussion section.

4.1.1. Pre- and post-program CMEK

The data gathered from the teachers’ responses in the pre- and post-program CMEK surveys were analyzed and coded on a spreadsheet file to match with the qualities of the framework. The coding was carried out by two raters whose results were compared to get the inter-coder reliability. The inter-coder agreement for the first set of data (pre-program survey) was calculated to get the percentage of the inter-coder agreement and reached 80% which, according to Miles and Huberman (1994), is good quality for qualitative reliability. The inter-coder agreement for the second data set (post-program survey) reached slightly higher than the previous one (89%), which was considered to show consistency of the coding agreement (Miles
Table 3.  
The qualities of the CALL material evaluation found in the pre- and post- CMEK surveys

<table>
<thead>
<tr>
<th>Quality</th>
<th>T-1 Pre/Post</th>
<th>T-2 Pre/Post</th>
<th>T-3 Pre/Post</th>
<th>T-4 Pre/Post</th>
<th>T-5 Pre/Post</th>
<th>T-6 Pre/Post</th>
<th>T-7 Pre/Post</th>
<th>T-8 Pre/Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential</td>
<td>- +</td>
<td>+ +</td>
<td>- +</td>
<td>- -</td>
<td>- +</td>
<td>- -</td>
<td>+ +</td>
<td>- +</td>
</tr>
<tr>
<td>Meaning Focus</td>
<td>- +</td>
<td>- +</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Learner Fit</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
<td>- +</td>
<td>+ -</td>
<td>- +</td>
<td>+ +</td>
</tr>
<tr>
<td>Authenticity</td>
<td>- +</td>
<td>- +</td>
<td>- -</td>
<td>- -</td>
<td>- +</td>
<td>- -</td>
<td>- -</td>
<td>+ -</td>
</tr>
<tr>
<td>Positive Impact</td>
<td>- +</td>
<td>+ +</td>
<td>- -</td>
<td>- +</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Practicality</td>
<td>- +</td>
<td>+ +</td>
<td>+ +</td>
<td>- +</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1 6</td>
<td>4 6</td>
<td>2 3</td>
<td>1 3</td>
<td>1 4</td>
<td>2 1</td>
<td>2 3</td>
<td>2 2</td>
</tr>
</tbody>
</table>

*Note: (+) indicates the presence and (-) indicates the absence of the quality in the teachers’ responses*
& Huberman, 1994). The final results were transferred into the format of plus (+) and minus (-) as an indication of the present and absence of the qualities in the teachers’ responses. The number of the qualities found in the teachers’ responses before and after the TDP were calculated. Table 3 summarizes the result of the data analyses.

Before starting the program, the teachers had relatively smaller numbers of the qualities as their consideration in the CALL material evaluation (see Table 3). Of the six qualities of the CALL material evaluation framework, they discussed one to four of them. Most of the teachers considered Practicality and Learner Fit, but none of them mentioned Meaning Focus. After the TDP, on the other hand, the teachers exhibited more various qualities in their CALL material evaluation. Even though Learner Fit and Practicality seemed to be the most considered qualities, similar to those of found in the pre-program CMEK survey, the teachers additionally considered Language Learning Potential. However, Meaning Focus remained the least frequent quality in the teachers’ consideration. Figure 6 compares results from the pre- and post-program CMEK surveys.

*Figure 6. The numbers of the qualities on the pre- and post-program survey*
As illustrated in Figure 6, most of the teachers (Teachers 1, 2, 3, 4, 5, and 7) considered a greater numbers of the qualities of the CALL material evaluation framework after the TDP. However, Teacher 8 did not show any difference of the number of the qualities in his material evaluation. In contrast to other teachers, Teacher 6 showed one less quality after the TDP. In other words, based on the data analyses on the pre- and post-program surveys, most of the teachers changed what they thought should be considered when evaluating CALL materials. Most of them took more qualities into account, one of them stayed with the same number of the qualities, and one had fewer qualities.

4.1.2. CMEK Reflection

Of the eight participants, seven completed the CMEK Reflection. Their complete responses to the question were analyzed qualitatively and interpreted by two coders as whether or not they attained the knowledge successfully. Two codes were used: YES and NO for the successful and unsuccessful attainment respectively. Table 4 provides the teachers’ complete response to the CMEK Reflection prompt and shows our interpretation of whether or not the teachers indicated their attainment of the knowledge.

As shown in Table 4, most teachers indicated that they learned the CMEK from the session. Teacher 1 affirmed that she gained awareness of material evaluation to ensure that the material is appropriate for the students. She also explicitly stated that she had learned how to evaluate CALL materials from session 2, which included Module 2 and the tasks in Moodle. Teacher 2 listed what she had learned from the TDP. She mentioned that she learned both theories (explicit knowledge) and practice (implicit knowledge) in CALL material evaluation. Teacher 3 focused more on the framework. From his explanation, he seemed to have learned the
### Table 4.
The teachers’ CMEK attainment evidence from the CMEK Reflection

<table>
<thead>
<tr>
<th>Teachers</th>
<th>CMEK Retention</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>T- 1</td>
<td>Yes</td>
<td>I have learned a lot in this session. After I have studied the module 2 about how to evaluate call materials for learners. I realized that when I as a teacher pick a web-material, there are some qualities of framework to consider about. So I don't made a mistake by giving a wrong material for the learners.</td>
</tr>
<tr>
<td>T-2</td>
<td>Yes</td>
<td>I have learned theories and practices in evaluating CALL materials. This session discussed theories that provide qualities of CALL material evaluation framework, and it becomes my knowledge in dealing with CALL material evaluation. Then, I also have learned how to evaluate CALL materials. The session also elaborates qualities of CALL material evaluation framework and explanation of how to evaluate CALL materials under the framework. Then, the evaluation rubric is provided to guide me (I'm sure other lecturers too) to evaluate CALL materials. This evaluation rubric is really helpful. Both theories and practices really help me.</td>
</tr>
</tbody>
</table>
| T-3      | Yes            | - The framework for deciding the best material.  
- The framework plays as a set of indicators in finding the proper material.  
- The framework aims to avoid one's subjectivity in choosing a material.  
- I see the framework as a plan to teach. This is good enough since nothing is perfect in the end. |
| T-4      | Yes            | In this session I have learned a lot through the CALL framework. Because I rarely evaluate CALL materials (now I know the qualities to evaluate them such as) for example the authenticity, practicality, and so on. |
| T-5      | Yes            | I have learned to consider some things in choosing the material for the students. It really helps to use the rubrics. I used to just use my hunch on picking good or not so good materials. :D |
CMEK from a bigger picture, the framework. Teachers 4 and 5, on the other hand, indicated that they had gained awareness of the need for material evaluation as they realized that they tended to use their instincts when selecting materials. Additionally, they valued the framework as a guideline for evaluating CALL materials.

On the other hand, Teacher 6 connected the framework to his instructional practice. He provided an example of how he had changed his perspective on things to consider when selecting CALL materials. In his example, he claimed that he needed to consider the authenticity aspect in addition to language learning potential, the quality that he had neglected. On the contrary, Teacher 7’s response to the questionnaire in the CMEK Reflection did not provide any evidence that she learned the CMEK. Instead, she described her awareness of the use of technology for language teaching as well as the need for confidence in using technology. Her response was interpreted as unsuccessful attainment of the knowledge in the second session.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Evaluation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-6</td>
<td>Yes</td>
<td>This session makes my knowledge about how to teach English is getting better. For example; I've just understood the using of the reading section is not only makes students understand the sentences, but also we must concern of what we give in making our students able to use English in daily activities related to their majors.</td>
</tr>
<tr>
<td>T-7</td>
<td>No</td>
<td>I learned that language and technology can really go hand in hand. I also learned to not be hesitate in using technology although I am not very tech savvy</td>
</tr>
<tr>
<td>T-8</td>
<td>No Data</td>
<td></td>
</tr>
</tbody>
</table>
4.1.3. Participants’ CMEK Demos

In this course assignment, the teachers were assigned to work in pairs to choose one of CALL materials provided in the Moodle course page. The decision of pairing the teachers was to make them support each other since the support from the facilitator was decreased. The assessment of the teachers’ CMEK demos was initially performed by two raters individually. Another rater was involved to solve disagreements encountered by the previous raters. These three raters used the CMEK assessment rubric (Appendix G) which investigated the participants’ understanding of the conceptual knowledge of each quality of the framework. We examined their conceptual knowledge through how they addressed the guiding questions of each quality in the rubric (see Appendix B), provided evidence to answer the questions, and judged each quality based on their evaluation. To assess the teachers’ judgement on each quality, the raters also looked at the materials, discussed them, and came to similar conclusions on the material evaluation judgement.

There were four pairs completing the assignments: Teachers 1 and 2, Teachers 3 and 5, Teachers 4 and 7, and Teachers 6 and 8, which henceforth are called Group 1, 2, 3, and 4 respectively. Figure 7, 8, 9, and 10 show the screenshots of the teachers’ CMEK demos to illustrate their performances. The two raters shared the same results of our analyses on Group 1, 2, and 3, but had some disagreement on Group 4’s performance. Therefore, another rater was trained and recruited. His decisions on Group 4’s performance were used as the final results. Each group’s performance will be discussed separately.
Based on the inter-rater agreement, Group 1 performed well in evaluating the qualities of Language Learning Potential, Meaning Focus, Authenticity, and Practicality. They addressed the guiding questions in the CALL material evaluation rubric (see Appendix B) and provided evidence to answer to these questions as seen on Figure 7. Additionally, they judged these four qualities in a way that convinced the raters that they had demonstrated conceptual understanding of the framework. For example, they gave three as their judgment score of as most of their answers were positive. Therefore, the raters agreed that they achieved good in the assessment scale for these four qualities. Regarding other qualities, however, Group 1 exhibited incomplete understanding. For example, they did not provide enough explanation to the second guiding:

*Figure 7. The CMEK demonstration of Group 1*
question regarding Learner Fit: “Are other aspects of the materials besides the target language forms appropriate for my students?” Therefore, the raters considered them okay for this quality. Additionally, they also did not provide convincing evidence that they had attained the concept of Positive Impact quality because they tended to describe the opportunity to learn a new language focus (Language Learning Potential) instead of other aspects such as providing new content knowledge, new intercultural knowledge, or new learning strategies, which were explicitly stated in the rubric. Consequently, the raters considered the group’s knowledge of this quality to be poor. Overall, the raters agreed that Group 1 consisting of Teacher 2 and 3 had partial understanding (PU) of the CMEK.

Figure 8. The CMEK demo of Group 2 using the rubric (right) to evaluate the material (left)

Group 2 consisting of Teacher 3 and Teacher 5 chose a web-based pronunciation resource from www.manythings.org, which focused on minimal pairs in saying numbers. While
they were evaluating the material, we could see the material displayed side-by-side to the rubric on their computer screen (see Figure 8). In the beginning of their presentation, they explained the context where the material was going to be used: the laboratory as the setting and the Architectural Engineering students in their institution as the target students. Afterwards, they explained and demonstrated how the material worked before they evaluated it. When evaluating the material, Teacher 3 and 5 used the guiding questions in the rubric, provided evidence to answer those questions, and then judged each quality fairly according to the evidence they had. Based on their demonstration, the raters agreed that the group showed evidence of their attainment of the qualities in the framework. Therefore, they were rated *good* on all of the qualities. Overall, the raters put the group’s knowledge under the band of Fully Understanding (FU).

*Figure 9.* The CMEK demo of Group 3 using the rubric (right) to evaluate the material (left)
Teachers 4 and 7, who worked collaboratively for Group 3, used reading resource from www.5minuteenglish.com about friendship as shown in Figure 9. In the introduction of their presentation, they explained that they were going to use the material in the language laboratory and target Civil Engineering students in the English 1 class, an elementary level. In their evaluation, they went through all of the guiding questions in the rubric and provided explanations for their answers. Despite the group’s short explanation, the raters agreed that the teachers demonstrated conceptual understanding on the qualities of Learner Fit and Authenticity. For example, when evaluating the Learner Fit quality, this group considered both students’ linguistic (language proficiency) and non-linguistic (cultural appropriateness) characteristics. When evaluating the authenticity quality, they provided a rationale for why this topic had a connection with the target students’ professional life. Teachers 4 and 7 argued that in the target students’ professional life, they interacted with officemates who became their friends. As a result, they managed to convince the raters that they did retain the concept of Authenticity. For Positive Impact, on the other hand, they tended to discuss the qualities of Language Learning Potential and Authenticity instead of other aspects such as new content knowledge, new intercultural knowledge, or new learning strategies. Therefore, the raters decided that their understanding of the Positive Impact quality was relatively poor.

In the evaluation of the other qualities (i.e. Language Learning Potential, Meaning Focus, and Practicality), Teachers 4 and 7 used the guiding questions but did not provide rationales in their answers to the questions. For instance, when answering the first question of the Language Learning Potential, “Does it provide enough exposure to the language?”, they only answered “Yes”. However, considering they described the content of the material earlier, the raters agreed
to consider their understanding of these qualities *okay*. Overall, their CMEK was rated PU (Partially Understanding).

<table>
<thead>
<tr>
<th>Quality</th>
<th>Question(s) to ask</th>
<th>Judgment</th>
<th>Judgment Score (1-5)</th>
</tr>
</thead>
</table>
| Language Learning Relevant? | 1. Does it provide enough exposure to the language?  
2. Does the activity provide focus on the language?  
3. Does it provide an opportunity for interaction? (human-human or human-computer)?  
4. How likely are my students to learn new language or language skills from the material? | Yes  
2. Yes  
3. Yes (human - computer)  
4. Possible | 3 |

*Figure 10.* The CMEK demo of Group 4 answering the guiding questions in the rubric.

Figure 10 illustrates how the last group, Group 4, presented their CMEK demo on a VoiceThread. This group, consisting of Teacher 6 and Teacher 8, selected a reading from [www.webdisk.Uclark.edu](http://www.webdisk.Uclark.edu) with a Halloween theme. They planned to use the material in the language laboratory and targeted Architectural students. In their material evaluation, these teachers brought up an opportunity of human-computer interaction. As discussed earlier in Chapter 2, interactions are important for SLA according to the interactionist SLA theory. However, their argument on the opportunity of language learning was considered not strong enough. Therefore, they achieve *okay*. The *poor* grades were given for their evaluation on the
qualities of Meaning Focus, Learner Fit, and Positive Impact. In evaluating these qualities, the teachers only provided yes-no answer without providing any explanation. Instead, they repeated the question to answer the question. For example, to the question “Does it direct my students’ attention primarily toward the meaning of the language?” in the Meaning Focus quality, they answered “Not really because it doesn’t really direct my students’ attention primarily toward the meaning of the language”. Additionally, when investigating Learner Fit, Teacher 6 and 8 did not provide a convincing explanation as the answer to the second guiding question, “Are other aspects of the materials besides the target language forms appropriate for my students?” They only provided a Yes answer without providing any supporting explanation. Therefore, the rater could not find any evidence whether they attained the concepts of these qualities.

In investigating Authenticity, they stated that the Architecture students would not use the language in the material either in their academic or professional life. Their explanation, however, was not considered convincing as they did not elaborate on their answer. Thus, this group was rated okay for Authenticity. Lastly, this group was rated good only for Practicality. For overall evaluation, Teacher 6 and 8 were put under Partial Understanding (PU) for having 1 good and also under Non Understanding (NU) in the assessment rubric for having more than three poor grades.

In conclusion, from their CMEK demonstrations, the teachers demonstrated different levels of CMEK attainment. One group achieved a higher level of the CMEK attainment, two groups achieved a moderate level, and one group achieved a low level of CMEK attainment. The findings from the analysis of the teachers’ demos were largely similar to the findings in the CMEK surveys and CMEK Reflection. However, to some extent, there were some differences. The similarities and differences between the findings will be discussed in the discussion section.
4.1.4. Interviews

From the interview data, all of the participating teachers believed that the TDP had changed their knowledge of CALL material evaluation. Their changes were demonstrated in three aspects that emerged from the inductive data analysis: their awareness of the importance of CALL material evaluation, the knowledge of specific qualities from the CALL evaluation framework, and the role of the rubric as the guideline for material evaluation.

**Theme 1: Awareness of the importance of CALL material evaluation**

Some teachers thought that the TDP had raised their awareness of the importance of CALL material evaluation. Teacher 1, for example, said that her participation in the TDP had changed the way she saw CALL material evaluation. She claimed that she gained some awareness of the importance of material evaluation, as she stated, “Now I am aware that choosing materials cannot be random from whichever websites, but we need to consider those things (the qualities).” (Individual interview, February 2016)

Additionally, Teacher 6 realized that he had missed some qualities as he reflected on the way he had evaluated CALL materials. He believed that this incomplete evaluation could be one affecting his learning. He stated, “I realized that what we give to the students does not meet their needs, it does not relate to their fields of study. Perhaps this is why the language learning process doesn’t seem to be effective” (Individual interview, February 2016).
Theme 2: Knowledge of specific qualities from the CALL evaluation framework

Some teachers highlighted the qualities of material appropriateness that they had learned in the TDP. Teacher 1, for example, stated, “After the TDP, I learned that material evaluation has some criteria. For example whether they are leaner fit, whether they have the language feature(s) that we are teaching, whether they are too difficult, and so on” (Individual interview, February 2016).

Additionally, Teacher 5 thought that he had learned the qualities, which he referred as aspects, as considerations when evaluating CALL materials.

Before the TDP, I always used my hunches to choose materials to decide whether they fit or were suitable for my students or not. After the TDP, at least now I know what aspects need to be considered before using CALL materials. (Individual interview, February 2016)

Teacher 4 also explicitly stated that she had developed knowledge of CALL materials evaluation that would help her select appropriate materials before she used them in her instruction. She said, “I have broadened my knowledge about CALL materials, and how to choose and evaluate CALL materials appropriately before using it to my students.” (Individual interview, February 2016)

Similar to Teacher 4, Teacher 8 also explicitly mentioned that he had gained more knowledge of CALL materials evaluation by acknowledging the qualities in the framework, and that he believed that these qualities should be considered when selecting CALL materials.

Yes, I think I have broadened my knowledge in terms of judging whether CALL materials are good or not. So, I have learned that there are some aspects that need to be considered to decide whether some CALL materials are appropriate to use, the aspects include
language learning potential, meaning focus, learner fit, authenticity, positive impact, and practicality. These aspects should be investigated to evaluate (teaching) materials so they can be used effectively. Relating the new knowledge that I have learned from this TDP, I am sure that I can select materials that will stimulate students' learning.

(Individual interview, February 2016)

**Theme 3: The role of the rubric**

Of the three aspects emerged from the interview data, half of the participants thought that it was the rubric that was helpful for performing CALL material evaluation. Teacher 1 said that the qualities that she had learned from the framework could be easily followed in the provided rubric. “All of the aspects that we need to consider for material evaluation, they are all in the evaluation rubric” (Individual interview, February 2016).

Teacher 2, who had been aware that CALL materials were not always the best materials, thought that the framework and the rubric helped her to decide whether a CALL material was suitable for her students, as seen in her translated excerpt below:

That’s why, the rubric is really helpful to better understand the CALL material evaluation framework with six qualities of appropriateness such as language learning potential, meaning focus, learner fit, authenticity, positive impact, and practicality. As I’m aware that web-based materials are not all appropriate to use. It (the rubric) helps me to have a better picture to decide whether the materials are appropriate, and so on.

(Individual interview, February 2016)
Teacher 3 stated that she did learn the CMEK from the TDP. She said that the framework in the rubric helped her to avoid selecting and incorporating materials at random.

After joining the TDP, I have learned a lot and become familiar with (CALL materials) and how to evaluate their appropriateness using the provided rubric. Thus, when determining whether CALL material is good, I am not guessing and choosing them randomly. (Individual interview, February 2016)

Teacher 7 claimed that she had actually been doing the materials evaluation prior to the TDP. Thus, she thought that materials evaluation was not really a new thing for her. However, she admitted that she had been using her instincts. Therefore, she believed that the lesson she had learned from the TDP was the use of the rubric to evaluate CALL materials in a more systematic way.

Referring to the rubric, I feel like I have been doing this all the time. For example, whenever I want to use one of the materials given by the English team in ITENAS to teach another group of students, I always think about these qualities such as what type of learners they are. If they are high school students, then I need to think about the topic in the teen world so that they can use it in their real life, which means, you know, I consider the quality of, what is it? Authenticity, but I did not know the term. So, the rubric allows it (the evaluation) to be performed in a more structured way. (Individual interview, February 2016)

In conclusion, from the data gathered in the individual interview sessions, it can be seen that all teachers believed that they had broadened their knowledge of CALL material evaluation.
There were three aspects brought up by the teachers: their awareness of the importance of CALL material evaluation, the CMEK based on the framework, and the role of the rubric as the guideline for material evaluation. Teacher 1 brought up all the three aspects. On the other hand, Teachers 4, 5, and 8 focused more on the qualities of the framework. Teachers 2, 3, and 7 focused more on the rubric role. The triangulation of these findings will be discussed in the next chapter.

4.2. The change in Indonesian teachers’ attitudes toward technology after online TDP

To investigate the teachers’ ATT change after the TDP, three data analyses were carried out. First, the quantitative data from pre- and post-program surveys were calculated, compared and contrasted. Second, the data from ATT Reflection were coded qualitatively. Lastly, the data from the individual interviews were presented and discussed.

4.2.1. Pre- and post-program ATT surveys

The teachers’ overall scores on the ATT surveys were calculated to get the mean and standard deviation. The results of the data analyses of the pre- and post-program surveys are presented in Table 5.
### Table 5.
Teachers' ATT based on the pre- and post-program surveys

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Item 2</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Item 3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Item 4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Item 5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Item 6</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Item 7</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Item 8</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Item 9</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Item 10</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Item 11</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

| Mean | 4.64 | 5.00 | 4.18 | 4.5  | 4.00 | 3.82 | 3.73 | 3.73 | 4.91 | 4.55 | 3.36 | 3.64 | 3.73 | 4.00 | 4.27 | 4.27 |
| SD   | 0.67 | 0.00 | 0.40 | 0.52 | 1.00 | 0.75 | 0.90 | 0.90 | 0.30 | 0.82 | 1.36 | 1.57 | 1.01 | 0.77 | 1.19 | 1.62 |

*Note:* Description of the items:

- Item 1: Technology makes my professional work more difficult.
- Item 2: Using computers for learning takes students away from important instructional time.
- Item 3: Computers should be as important and available to the students as pencils and books.
- Item 4: I am confident using technology as a learning resource.
- Item 5: I feel out of place when confronted with technology.
- Item 6: I do not believe the quality of English education is improved by the use of technology.
- Item 7: I am concerned that technology might interfere with student interactions.
- Item 8: There is not enough time to incorporate technology into the subjects I teach.
- Item 9: I really enjoy using computers and the Internet instructionally.
- Item 10: Students should be able to use computers to help solve problems in English.
- Item 11: Students can use computers and technology to help make informed decision.
The teachers’ responses on the pre-program ATT survey indicated that all of the participants had positive ATT as the mean scores range from 3.36 to 4.91 (highest possible score=5.00). Among these teachers, Teacher 3, 4, 6, 7, and 8 had considerably high standard deviations, \( SD=1.00 \), \( SD=0.90 \), \( SD=1.36 \), \( SD=1.01 \), and \( SD=1.19 \) respectively, compared to other teachers whose standard deviation scores were less than 0.70. Referring to the scores of individual items, Teacher 3, 4, and 7 varied their scores (2 to 5) across the 11 items. Teacher 3 had a low score for item 7 (I am concerned that technology might interfere with student interactions), and Teacher 4 had a low score for item 3 (Computers should be as important and available to the students as pencils and books), whereas Teacher 7 had a low score for item 5 (I feel out of place when confronted with technology). Teacher 6, on the other hand, had scores ranging from 1 to 5 with the low scores for item 4 (I am confident that using technology as a learning resource), item 6 (I do not believe the quality of English education is improved by the use of technology), and item 7. Somewhat similar to Teacher 6, Teacher 8 also had a low score for item 7, but he also had a low score for item 5. His scores, however, varied between 2, 4, and 5 across the items.

From the post-program surveys data analyses as shown in Table 5, the teachers’ ATT remained above the midline score (2.50) with their mean scores ranging from 3.64 to 5.00. This means their ATT were overall positive. The standard deviations (SD), however, of Teachers 4, 6, and 8 were high, \( SD=0.90 \), \( SD=1.57 \), and \( SD=1.62 \) respectively. Teacher 4 had scores ranging from 2 to 5 with a low score for item 5 while Teachers 6 and 8 had scores that varied between 1 and 5. Teacher 6 gave low scores for item 2 (Using computers for learning takes students away from important instructional time), item 5 (I feel out of place when confronted with technology),
item 6 (I do not believe the quality of English education is improved by the use of technology), and item 7.

A comparison of the participants’ overall ATT before and after the TDP can be seen in Figure 11, which illustrates how their ATT changed according to their response in the pre- and post-program ATT surveys.

![Figure 11. The change in teachers’ ATT based on the pre- and post-program ATT surveys](image)

In conclusion, as illustrated in Figure 11 above, there were three different ATT change possibilities before and after the TDP: increased, remained the same, and decreased. Teachers 1, 2, 6, and 7 increased their positive ATT, Teachers 4 and 8 did not change their ATT, whereas Teachers 3 and 6 slightly decreased their positive ATT.
4.2.2. ATT Reflection

The teachers’ responses in the ATT Reflection were segmented and analyzed to identify their positive or negative attitudes toward technology (ATT).

Table 6. Coded excerpts from the teachers’ ATT Reflection

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Evidence</th>
<th>Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>One of them is the source of materials for teaching that you gave in this session. It helps me a lot as a teacher.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>With my teaching schedule, sometimes I barely have time to type the materials and copy them. I think VoiceThread is my solution.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>It will be easy if I use this materials in my class for my students who have lower understanding in English.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Most of my students are afraid with TOEFL test, but this websites I think it will change their mind.</td>
<td>Positive</td>
</tr>
<tr>
<td>2</td>
<td>Inevitably I, as an English teacher, have to keep up with the technology development in teaching.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>I see nothing that cannot help me to learn CALL.</td>
<td>Positive</td>
</tr>
<tr>
<td>3</td>
<td>I would like to know more about the idea to &quot;control&quot; the students using CALL.</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>It is because I see CALL as a great alternative toward the traditional method.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Since I like them all, I do not have to answer this question.</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>I’d like to try the video - based material because I think it is interesting.</td>
<td>Positive</td>
</tr>
<tr>
<td>5</td>
<td>So I think it's time for me to give a shot at something new for me.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>I'm okay with any materials.</td>
<td>Positive</td>
</tr>
<tr>
<td>6</td>
<td>Using technology in teaching English makes the class more active.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>I think I'd like to try to integrate all CALLS materials in my teaching.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>They (the students) have a great enthusiasm for studying it.</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>So, with this method, I believe teaching would be easier to be delivered to them.</td>
<td>Positive</td>
</tr>
<tr>
<td>7</td>
<td>Teachers nowadays really have to be very technology savvy Mastering technology that will enrich my knowledge and teaching competence</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>I still have to study them more thoroughly</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>If I could, I would integrate them all</td>
<td>Negative</td>
</tr>
<tr>
<td>8</td>
<td>No data</td>
<td></td>
</tr>
</tbody>
</table>
As shown in Table 6, most of the teachers indicated positive attitudes toward technology. Among them, Teachers 1, 2, 4, 5, and 6 gave entirely positive clues of their ATT. Teacher 1 thought that the CALL materials that she dealt with throughout the TDP were beneficial, so she thought they were helpful and practical to use in that they could save her time, and did not require complex operational procedures so that she could use them for her students with lower technical knowledge. Teacher 2 exhibited motivation to learn more about CALL as she wanted to keep up with technology developments. Teacher 4 thought that video-based teaching materials were interesting and that he would like to try them as they had never used them prior to the TDP. Teacher 5 said that he had been in his comfort zone with technology and wanted to try something new with it. Additionally, as he did not have any problems with technology, he was okay in using any kinds of CALL materials. Lastly, Teacher 6 wanted to use CALL in his instruction. He believed that using technology would provide a different learning atmosphere in his instruction. As a result, he thought that the students would be more active and enthusiastic to learn in the classroom as he thought the teacher centered method, which had been commonly practiced in the institution, was considered boring by the students.

While Teachers 1, 2, 4, 5, and 6 indicated their positive attitudes toward technology, Teachers 3 and 7 exhibited both positive and negative ATT. Teacher 3 stated that he liked using technology in his instruction. He thought that technology was a great alternative to the conventional teaching. However, he did not believe that technology was appropriate for our students considering the fact that they frequently abused the technology and went off task. Teacher 7, on the other hand, agreed that it was time for teachers to learn how to use technology for instructional practice. She also thought that learning technology would help her develop other things such as teaching knowledge and competence. However, she still felt unsure whether she
was able to do it. She said, “I still have to study them more thoroughly” and “If I could, I would integrate them (CALL materials) all” (Teacher 7, ATT Reflection).

In conclusion, based on the data analysis of ATT Reflection, most of the teachers exhibited positive ATT. However, two teachers still had some concerns regarding the use of technology: Teacher 3 was concerned about the students’ readiness and Teacher 7 was unsure with her technological skills. The data from Teacher 8 could not be found due to the aforementioned reason.

4.2.3. Interviews

The data from the individual interviews through the WhatsApp voice chat were analyzed not only to investigate the teachers’ CMEK change as discussed earlier in this chapter, but also to investigate their attitudes toward technology change after the TDP. The qualitative data coding revealed two themes: additional motivation to integrate CALL and the unchanged attitudes toward technology. The former theme was considered as a change to the teachers’ ATT. In the later theme, there were two different states of the teachers’ ATT: the unchanged positive ATT and the unchanged mixed ATT. Each theme will be discussed consecutively.

Theme 1: Additional motivation

Some teachers said that they already had positive attitudes toward technology prior to the TDP. Teacher 1, for example, told the interviewer that she had some interest in learning more about technology, but that she sometimes considered many things hard to understand. However, she said, “After the TDP, I have learned that some applications are not as difficult as I imagined they were. In fact, they help me make my instructional practice easier.” (Individual interview, February 2016)
Similar to Teacher 1, Teacher 2 stated that she had been interested in technology and learning how to use technology. Unfortunately, she had to miss many opportunities to explore more due to budget or distance issues. In her response, she told the interviewer that her ATT remained positive, but she said, “Now, I feel more confident (to use CALL).” (Individual interview, February 2016)

In his response, Teacher 8 also claimed that he gained more interest in using technology because it could allow for more interactivity in the classroom. He also talked about the web-based teaching materials that were accessible and expressed his motivation to use them. Below is his response in the interview session:

Regarding my feeling toward technology, I think I have had wanted to use it in my instructional practice. However, after the TDP, I have become more enthusiastic to use new (web-based) teaching materials that are appropriate to the students in order to provide more interactive instructions. Fortunately, these materials are easy to access. (Individual interview, February 2016)

**Theme 2: The unchanged attitudes toward technology**

Among the participating teachers, there was one teacher (Teacher 5) who explicitly told the interviewer that his attitudes did not change. When asked whether he thought his ATT changed after the TDP, he said, “I think, no. Maybe because I have always liked to use CALL materials” (Individual interview, February 2016).

From the analysis of the interview data, some teachers believed that their ATT did not change much. Teacher 3 was one of them. He told the interviewer that he had no problem in
dealing with technology and he was interested in using technology. However, he thought that the use of technology was not appropriate for our students. He said,

I have always been wanting to use technology in the classroom because I like technology, but I never fully believe that its integration is proper for our students. I am not sure if we can apply CALL in the classroom setting or outside the classroom.

(Individual interview, February 2016)

In their responses during the interview sessions, Teachers 4, 6, and 7 believed that their ATT remained the same as before the TDP. Teacher 4 considered herself not technologically savvy, but she believed that she had to work hard as she wanted to integrate technology in her instruction. She stated, “However, after joining the TDP, I still think that I need to learn more about how technology integration works in language teaching, considering I’m not technology savvy” (Individual interview, February 2016).

Additionally, Teacher 6 thought that she always became nervous when dealing with some technical issues. She said, “If everything goes smoothly (technically), I think there won’t be any problems … I am not really technologically knowledgeable.” (Individual interview, February 2016)

Similar to Teachers 4 and 6, Teacher 7 who did not consider herself tech savvy, said, I am still feeling uncomfortable in using technology. For example, when given a step-by-step tutorial, I would feel comfortable if what I did was according to the illustration, but when it appeared different, I felt frustrated because I was worried that I would lose my data or something like that. When I succeeded, I felt like I achieved something, I learned something new. (Individual interview, February 2016)
From her statement, she thought that even after the TDP, she did not change the way she felt dealing with technology. When everything seemed fine and as expected, she would feel great. On the contrary, when everything did not meet her expectations, she would get stressed out easily.

In conclusion, there were three findings from the interview data analysis: three teachers gained more ATT after the TDP, one teacher had the same positive ATT, and four teachers maintained the mixed ATT that they had prior to the TDP.

In this chapter, the findings from different data sources were presented and elaborated. The discussion of these findings, including their connection to the previous studies, will be discussed in the next chapter.
CHAPTER 5. DISCUSSION AND CONCLUSION

This chapter discusses the findings from different data sources presented in the Results section and the results of the triangulation of these data sources to provide better understanding in regard to the research questions. Furthermore, the findings of this study are compared to the literature review discussed in Chapter 2. Additionally, this chapter includes the limitation of the study, direction for future research and practice and conclusion.

As mentioned earlier in this paper, this study investigated the change in the knowledge of eight Indonesian teachers as well as their attitudes toward technology (ATT) after their participation in an approximately five-week online TDP. After all the data were coded and analyzed, some findings from each data source were revealed.

The findings from comparing the results from the pre- and post- CMEK survey data analyses showed that most teachers had increased the number of the qualities of CALL materials in their CALL material evaluation, except Teacher 6 and Teacher 8 who did not indicate the increase of their CMEK. The findings from CMEK Reflection data analysis showed that six of eight teachers were aware of what they learned in the second session, but Teacher 7 did not indicate that she had learned the CMEK in the second session. The findings from the analysis of the teachers’ CMEK demos showed that all teachers demonstrated their skills in evaluating a CALL material in two different levels: Fully Understanding (FU) and Partially Understanding (PU). However, it is important to note that Teacher 6’s and Teacher 8’s CMEK was placed in between PU and Non-Understanding (NU). The data from the personal interviews conducted after the last session of the TDP provided information that all teachers perceived their CMEK development. Nonetheless, it is also necessary to highlight that Teacher 6 needed more questions
as clues to get to the expected answer in regard to his CMEK development. During the interview session, Teacher 6 focused more on his technical knowledge development and some technical issues that he encountered, instead of the CALL material evaluation knowledge.

The findings from the ATT surveys data analysis showed that the teachers had had relatively positive attitudes toward technology prior to the TDP. After the TDP, four teachers indicated a marginally more positive ATT, two teachers indicated a slightly decrease in their positive ATT, and two teachers’ ATT remained the same before and after the TDP. The findings from the ATT Reflection showed that five teachers exhibited positive ATT, two teachers indicated their mixed ATT, and one teacher did not fill out the ATT Reflection. The findings from the interview sessions showed that three teachers claimed to have increased positive ATT, one teacher explicitly believed that his positive ATT remained the same, and four teachers indicated their mixed ATT remained the same after the TDP.

5.1. Discussion

5.1.1. The change in the teachers’ CALL material evaluation knowledge

From the explanation above, it can be interpreted that the results from the four data sources confirm the finding that five of eight teachers (Teacher 1, 2, 3, 4, and 5) developed their CMEK after their participation in the TDP. This unsurprising finding supports the findings from the previous studies providing evidence that teachers developed their knowledge after participating in TDPs (Liu & Kleinsasser, 2015; O’Dowd, 2015; Tai, 2013; Nakagawa, 2010; Rienties et al., 2013; Chao, 2006; Meskill et al., 2006; Chao, 2006; Hegelheimer, 2006; Spratt et al., 2000). However, the analyses of these four data sources show different results for Teachers 6, 7, and 8. Teacher 6 indicated his CMEK learning in his CMEK Reflection, but the results from
the analysis of his pre- and post-program CMEK surveys showed a drop in the number of qualities of CALL material evaluation framework indicated. Additionally, his CMEK in his demo was also placed in under the NU band indicating his unsuccessful attainment of the CMEK. Moreover, in the interview session, additional questions were needed to gather more information on his CMEK as he focused on the development of his technical knowledge. These findings can be interpreted as his marginal attainment of the CMEK.

Relatively similar to Teacher 7, Teacher 8 indicated his CMEK learning only in the interview session. In his responses on the pre- and post- CMEK surveys, he did not indicate his CMEK development as the number of the qualities of CALL material evaluation that he described remained the same. In his CMEK demo, he also did not successfully demonstrate his understanding of the concepts of CALL material evaluation framework because he achieved poor on four qualities. Despite the missing data, the findings from the remaining data sources can be used to conclude that Teacher 8 did not develop his CMEK through the TDP, similar to Teacher 6. Unlike Teachers 6 and 8, Teacher 7 had her own learning pattern. The data analyses from the pre- and post- CMEK surveys, CMEK Reflection, the teachers’ demos, and the interview session showed that Teacher 7 needed more time or more scaffolding to develop her CMEK than expected. The data analyses results showed that she did not develop her CMEK immediately after the second session, but she exhibited the development of the CMEK in other data sources such as the teachers’ CMEK demo, interview, and CMEK survey that she filled out at the end of the course.

Based on the discussion above, there are three main findings regarding the change in the teachers’ CMEK: (1) Five teachers have successfully attained the knowledge; (2) One teacher, Teacher 7, needed more time to develop her CMEK; and (3) Two teachers, Teacher 6 and 8 have
shown their unsuccessful attainment of the CMEK. There are some possible explanations to these findings. First, the five teachers who developed their CMEK were actively engaged during the TDP. They responded to the questions in the discussion forums in Moodle and they communicated actively with the TDP facilitator to inform her of any emerging personal issues. For example, Teacher 4 kept the TDP facilitator informed regarding the progress of her task completion even though she had a lot of technical issues. As Wu et al. (2014) and Rienties et al. (2013) found, teachers who participate actively in TDPs exhibit their knowledge development. Additionally, Teacher 4 as well as Teachers 1, 2, 3, and 5 had some prior experiences with face-to-face TDPs. Moreover, Teacher 2 was familiar with Webinars and had joined some prior to the TDP in this study. Their experience might have made them aware that TDPs in general set their learning outcomes and expectations. This awareness helps teachers achieve the objectives of the TDP (Olesova & Meloni, 2006).

The second finding can be interpreted as Teacher 7’s needing to have more coaching and scaffolding both from the facilitator and her colleagues. Chao (2006) has shown that scaffolding contributes a significant amount to teachers’ knowledge development. Scaffolding can be provided through discussion sessions such as those found in O’Dowd (2015), Rienties et al. (2013), and Spratt et al. (2000). In these studies, the teachers demonstrated or perceived the development of their knowledge by sharing ideas regarding the technical pedagogical issues. Additionally, scaffolding can be provided by allowing collaboration. The fact that Teacher 7 exhibited her CMEK development after she was paired with a partner might indicate that it was the collaboration helping her attain the CMEK. This finding aligns with the findings found in Wu et al. (2014) and Meskill et al. (2006). Their studies have given evidence that collaboration
between novice-expert teachers in TDPs provides many benefits in developing the novice teachers’ knowledge.

The third finding can be perceived as the result of the mismatch between the TDP facilitator’s and the teachers’ perceptions regarding the objectives of the TDP. This mismatch in perceptions has caused the unsuccessful attainment of the learning objectives set in the TDP. Teacher 6 seems to have expected more technical knowledge instead of pedagogical knowledge, whereas the aim of the TDP was to develop their pedagogical knowledge. This problem was also encountered by Broady-Ortmann (2002) in which some teachers expected to be technologically literate after the course, whereas the TDP designers expected them to be able to integrate technology according to the National Standard of Foreign Language Teaching. To further understand what potentially caused this mismatched perception, the information on the two teachers’ educational backgrounds and their TDP experience were related to their unsuccessful attainment in this study. According to Teacher 6, who graduated with a non-educational degree, he had never participated in any online and/or CALL teacher education programs prior to this study. His lack of TDP experience might have made him unaware of how TDPs work differently.

Considering the TDP was delivered fully online, focusing on CALL and some technical training conducted before the TDP, Teacher 6 might have perceived the TDP to be focusing on technical knowledge. As a consequence, his focus toward technical skills might have affected his perception of the program and made him find the objective of the TDP, which gave him more conceptual information, somewhat unclear. This issue was also found in Rienities et al.’s (2013) study, which revealed that teachers who expect to learn practical skills find learning conceptual knowledge unclear. Teacher 8, on the other hand, missed the introductory stage of the TDP. Therefore, he missed important information regarding the TDP which resulted in his
unawareness of the purpose of the TDP. Consequently, he did not achieve the aim of the TDP successfully. Thus, concerning the second and the third findings, I agree with Olesova and Meloni (2006) who suggest that teachers participating in TDPs should be aware of the demand and purpose of the programs in order to achieve the expected outcomes.

In addition to the mismatched perception, these two teachers also confessed that they did not have much experience in joining TDPs that did not apply a student centered approach. As the TDP in this study started from the teacher centered moving to the student centered, it would not be easy for teachers who were not familiar with that kind of learning direction (Olesova & Meloni, 2006). As a consequence, these teachers might have lacked autonomy to help them in learning for themselves (Warschauer, 2002). Moreover, neither had any experience in joining an online TDP prior to this study. This fact most likely affected the finding in this study as they had lack of technical knowledge for learning. This calls to mind the teachers in Olesova and Meloni (2006), who in their first online experience had low participation in the discussion forums and infrequently checked their emails. Consequently, they failed to complete the tasks on time. The situation for Teachers 6 and 8 was worsened as they were paired to work collaboratively to complete the CMEK demo. This pairing did not give them a lot of opportunities to share their knowledge considering they did not have enough to share. Novice teachers learn from the expert teachers such as those participating in Meskill et al. (2006).

5.1.2. The change in the teachers’ attitudes toward technology

The findings from the three data sources that were presented in the Results section as well as briefly recapped earlier in this chapter led to three findings regarding the change in the teachers’ attitudes toward technology. First, two teachers (Teachers 1 and 2) gained marginally
more positive ATT, in the form of more motivation to integrate CALL. Second, three teachers’ ATT remained the same whether they are positive or mixed. Third, three teachers indicated inconsistent ATT across the research instruments.

While previous studies (e.g. Tai, 2013; Kessler, 2007; Hegelheimer, 2006; Meskill et al., 2006; and Yildirim, 2000) have provided evidence that TDPs have a positive impact on teachers’ ATT, the findings of this study do not strongly support them. Even though there was a change in the three teachers’ positive ATT, the findings showed the change was very marginal. The teachers with uncomfortable feelings when confronted with technology had the same feeling after the TDP as before. These findings might have attributed by either these teachers having ATT that had been solidly shaped or the relatively short duration of the TDP. Indeed, changing teachers’ beliefs will take time (Postareff, et al., 2007), especially for very experienced teachers (Ertmer, 2005). These interpretations, however, need further investigation.

5.2. Limitation of the study

Even though the present study has provided evidence of the benefits of an online TDP for the teachers’ knowledge development, there are some limitations that need to be considered when interpreting the findings. These limitations are in regard to the instrument design, data analysis, and TDP design.

The research instrument design

To date, studies assessing teachers’ CALL materials evaluation knowledge (CMEK) have not been found. Thus, the research instruments to assess the teachers’ CMEK such as the CMEK surveys and the teachers’ CMEK demo assessment descriptors were designed for the purpose of
the present study and had not been employed prior to it. Regardless of the piloted use of these instruments and personal consultation with an expert in the field of assessment, their designs might have affected the findings in this study. First, one question only in the survey might not have been enough to elicit the teachers’ CMEK. Thus, some teachers provided short responses with not enough elaboration. Their short responses might not have exhibited their true CMEK. Second, because the raters found the descriptors of the CMEK assessment rubric might have been unclear. Thus, we could not decide whether two teachers were placed under PU or NU in the CMEK demos assessment. Clearer cut-scores between the NU and PU might have provided better information on the teachers’ CMEK.

Data analyses

In regard to the data analyses, there are two things that would have been useful if they had been applied in this study. First, if the attitudes toward technology (ATT) had been looked at from different perspectives such as enjoyment and confidence, issues with time and teaching quality, and students’ use of technology (Tai, 2013), then the different perspectives would have helped with better mapping of the teachers’ ATT, especially for those with the mixed ATT. Highlighting which aspect of their ATT was negative in every source of the data would have provided better picture of the teachers’ change in their ATT, particularly the teachers with inconsistent ATT across different data sources.

Second, the teachers’ CMEK demonstrated in their demos was assessed as a product of their pair work. Therefore, the CMEK assessed in this data source might not have been the teachers’ individual CMEK. This might have affected to the findings of this study because this study looked at the change in the teachers’ knowledge individually.
The TDP design

The design of the TDP in the current project also needs evaluating. The fact that three teachers dropped out the TDP due to time conflicts may have indicated that the timing design was not appropriate for Indonesian in-service teachers, especially part-time teachers. In addition to the time issue, the full online delivery mode should be considered when involving teachers with no experience with online learning, especially if they have anxiety about using technology. As a consequence, the teachers needed more time than what was planned to complete the course assignments, even though IT help was available. This caused them more difficulty in focusing on the CMEK as they worked harder dealing with the technology. As a consequence, their focus on the CMEK might have been distorted as they dealt with technical issues. The distorted focus could have affected their attainment of the CMEK.

5.3. Directions for future research and practice

Based on the findings and the limitations described earlier in this chapter, there are some suggestions for future research and TDP designers in CALL. For future studies that plan to employ the TDP used in this research project, it will be useful to employ the four levels of program evaluation suggested by Kirkpatrick (1994): evaluating reaction, evaluating learning, evaluating behavior, and evaluating results. Evaluating teachers’ perspectives on their learning experience in every stage of the TDP will be beneficial in providing constructive feedback to the TDP designers in order to refine the design of the TDP. As this study investigated the change in the teachers’ knowledge and attitude, which is the second level of Kirkpatrick’s levels, it will be necessary to evaluate it in the third and the fourth level. It means investigating whether or not they retain and apply their knowledge in their instructional practice (third level) and
investigating impacts on learning (the fourth level). In addition to investigating the teachers’ knowledge, it is also important to investigate the different aspects of teachers’ ATT including enjoyment and confidence, issues with time and teaching quality, and students’ use of technology (Tai, 2013), as well as confidence, anxiety, usefulness, and liking (Koohang, 2014). The information will provide better understanding of the aspects of technology which teachers have negative feeling about potentially hindering their use.

For TDP designers, it is important to consider using different types of delivery modes such as face-to-face or blended (both face-to-face and online) instead of purely online. This will provide more opportunities for the participating teachers to articulate their learning process (Chao, 2006) through both personal and group discussions, which are challenging to do online, considering Indonesian teachers are said to be insecure about expressing their true feelings. Knowing this information will help the facilitator provide better support (scaffolding) to assist teachers in achieving their best knowledge and skills attainment. Besides mode, the use of different learning models such as the TPACK-in-action (Tai, 2013) also needs considering. Last but not least, the use of the WhatsApp application in the present study as a means to coordinate with the teachers and to conduct the voice chat interviews shows promise as a mobile assisted form of data collection. For future practice, TDP designers should consider involving mobile applications to solve the time-conflict issue.
CONCLUSION

The current study investigated changes in teachers’ CMEK and ATT, after their participation in an online TDP. The findings of this study provide evidences that most Indonesian teachers developed their knowledge of CALL material evaluation, which was the main focus of the TDP, after participation in an online TDP. However, two teachers did not develop their CMEK as successfully as the other teachers. There were some possible factors that might have affected their knowledge attainment: their previous learning experience, including their experience in joining TDPs; their learning pace; and their technical knowledge. However, these speculations need further investigation. Additionally, this study also provides evidence that teachers did not noticeably change their ATT after having a hands-on experience throughout an online TDP. The factors that might have affected the findings are possibly the fact that they are experienced teachers, so they have shaped their ATT, or the duration of the TDP was too short to change their ATT. These speculations also need further research.

In conclusion, as many teachers in Indonesia need to prepare themselves before integrating CALL into their instructional practice, it is important to develop their CALL knowledge as well as experience with technology itself. Providing them an online TDP focusing on CALL material evaluation will be beneficial for them. First, they have an opportunity to experience the technology as learners. Second, they could develop their knowledge by learning from more expert teachers and/or with their peers. Third, with the CMEK, they will be ready to deal with the tremendous and growing amount of new technology.
REFERENCES


Tai, S. J. D. (2013). From TPACK-in-action workshops to English classrooms: CALL competencies developed and adopted into classroom teaching. Iowa State University, Ames, USA.


Wong, L., & Benson, P. (2006). In-service CALL education: what happens after the course is over?. In M. Levy & P. Hubbard (Eds.), *Teacher education in CALL* (pp. 251-264). Philadelphia: John Benjamins.


APPENDIX A. IRB APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Date: 11/23/2015
To: Cory Caromawati
3319 Story St. #105
Ames, IA 50014

From: Office for Responsible Research

Title: An online teacher development program on CALL evaluation: Indonesian teachers’ knowledge and attitude

IRB ID: 15-661

Study Review Date: 11/20/2015

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

1. (1) Research conducted in established or commonly accepted education settings involving normal education practices, such as:
   - Research on regular and special education instructional strategies; or
   - Research on the effectiveness of, or the comparison among, instructional techniques, curricula, or classroom management methods.

2. (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
   - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
   - Any disclosure of the human subjects’ responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- You do not need to submit an application for annual continuing review.

- You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. Only the IRB or designees may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

Please be aware that approval from other entities may also be needed. For example, access to data from private records (e.g., student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires
permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.
Table 7.
The CALL materials evaluation rubric for teachers

<table>
<thead>
<tr>
<th>Qualities</th>
<th>Question(s) to ask</th>
<th>Judgment score</th>
</tr>
</thead>
</table>
| Language Learning Potential | 1. Does it provide enough exposure to the language?  
2. Does the activity provide focus on the language?  
3. Does it provide an opportunity for interaction (human-human or human-computer)?  
4. How likely are my students to learn new language or language skills from the material? | 1 2 3          |
| Meaning Focus           | Does it direct my students’ attention primarily towards the meaning of the language? | 1 2 3          |
| Learner Fit             | 1. Is the difficulty level of the targeted linguistics forms appropriate for my students?  
2. Are other aspects of the materials besides the target language forms appropriate for my students? | 1 2 3          |
| Authenticity            | 1. Will my students use this sort of language in their academic or professional lives?  
2. Will my students see the connection between the materials and their academic or professional lives? | 1 2 3          |
| Positive Impact         | Will the materials have positive impacts beyond language learning (e.g., providing new content knowledge, new intercultural knowledge, or new learning strategies)? | 1 2 3          |
| Practicality            | 1. Is the hardware available?  
2. Is the necessary software available (if needed)?  
3. Is the Internet connection available (if needed)?  
4. Am I familiar enough with how the material works? | 1 2 3          |
APPENDIX C. CALL MATERIAL EVALUATION KNOWLEDGE (CMEK) SURVEY

1. Web-based teaching (sources) materials that can be used for English language teaching have become more available and accessible nowadays. However, teachers must be selective before using them for instructional purposes. What factors should teachers consider when deciding whether and how to use such materials with a particular group of students? Please elaborate your answers as clear as possible. *

.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
APPENDIX D. ATTITUDES TOWARD TECHNOLOGY (ATT) SURVEY

1. Technology makes my professional work more difficult.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Using computers for learning takes students away from important instructional time.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Computers should be as important and available to the students as pencils and books.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. I am confident using technology as a learning resource.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. I feel out of place when confronted with technology.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. I do not believe the quality of English education is improved by the use of technology.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. I am concerned that technology might interfere with student interactions.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. There is not enough time to incorporate technology into the subjects I teach.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. I really enjoy using computers and the Internet instructionally.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Students should be able to use computers to help solve problems in English.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Students can use computers and technology to help make informed decision.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E. TEACHERS’ LEARNING REFLECTIONS

1. ATT Reflection

Complete this form after session 1

* Required

1. Your name *

2. What have I learned in this session (content wise and technology wise)? What helps? What does not help? What can be done better? *

3. What would I like to learn more? *

4. Which CALL materials would I like to try to integrate in my teaching? Why and how would I like to use it? *

5. Which CALL materials would I not like to try to integrate in my teaching? Why not? Please elaborate. *

Powered by

Google Forms
2. CMEK Reflection
APPENDIX F. INTERVIEW QUESTIONS

These four questions are the guideline questions. The interviewer started the session with some personal conversation before going into these questions. Whenever information was unclear, additional questions were asked to give the best picture of what the teachers perceived regarding the change in their own knowledge and attitudes.

Original (Indonesian) version

1. Setelah mengikuti program ini, apakah anda merasa ada perubahan pada pengetahuan anda mengenai cara mengevaluasi CALL materials untuk menentukan apakah material tersebut layak bagi mahasiswa anda?
2. Jika jawabannya iya untuk pertanyaan nomer satu, seperti apa perubahan yang anda rasakan? Jika tidak, apakah anda dapat menjelaskan alasannya?
3. Setelah mengikuti program ini, apakah anda merasa ada perubahan pada perasaan anda terhadap teknologi seperti computer dan pengunaanya untuk pengajaran bahasa?
4. Jika jawabannya iya untuk pertanyaan nomer tiga, seperti apa perubahan yang anda rasakan? Jika tidak, apakah anda dapat menjelaskan alasannya?

Translated version

1. After you participated in this TDP, do you think you have changed your knowledge regarding CALL material evaluation to determine the appropriateness of a material for your target learners?
2. If your answer to number one is Yes, can you tell me how has it changed? If the answer is No, can you provide the possible reason why it happened.
3. After you participated in this TDP, do you think you have changed your feeling toward technology and its integration in the language instruction?
4. If your answer to number one is Yes, can you tell me how has it changed? If the answer is No, can you provide the possible reason why it happened.
Table 8.
Raters’ CMEK rubric

<table>
<thead>
<tr>
<th>Group number:</th>
<th>Quality</th>
<th>Questions</th>
<th>Descriptive answers</th>
<th>Overall Judgment (Poor, Okay, or Good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LLP</td>
<td>- Do they demonstrate their understanding on the concept of ‘language’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LLP</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LLP</td>
<td>- Do they provide enough and convincing explanation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meaning Focus</td>
<td>- Do they demonstrate their understanding on the concept of ‘meaning focus’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meaning Focus</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meaning Focus</td>
<td>- Do they provide enough and convincing explanation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learner Fit</td>
<td>- Do they demonstrate their understanding on the concept of the ‘linguistic characteristics’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learner Fit</td>
<td>- Do they demonstrate their understanding on the concept of the ‘non-linguistic characteristics’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learner Fit</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learner Fit</td>
<td>- Do they provide enough and convincing explanation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Authenticity</td>
<td>- Do they demonstrate their understanding on the concept of ‘authenticity’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Authenticity</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Authenticity</td>
<td>- Do they provide enough and convincing explanation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive Impact</td>
<td>- Do they demonstrate their understanding on the concept of ‘positive impact’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive Impact</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive Impact</td>
<td>- Do they provide enough and convincing explanation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practicality</td>
<td>- Do they demonstrate their understanding on the concept of ‘practicality’ in this quality?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practicality</td>
<td>- Do they provide answers to the questions in the rubric?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practicality</td>
<td>- Are their explanation and evaluation enough and convincing?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Band: Non Understanding | Partially Understanding | Fully Understanding
Table 9.  
*CMEK rubric descriptors*

<table>
<thead>
<tr>
<th>Bands</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully understanding (FU)</td>
<td>Have at least 3 “Good” and no “Poor”</td>
</tr>
<tr>
<td>Partially understanding (PU)</td>
<td>Have at least 1 “Good” and at most 2 “Poor”</td>
</tr>
<tr>
<td>Not understanding (NU)</td>
<td>Have No “Good” and more than 3 “Poor”</td>
</tr>
</tbody>
</table>
The teachers failed to perform this task even after some reminders sent through WhatsApp personal chats and groups.

Only a few teachers performed well on this task. Most of the teachers failed to complete the task without explaining their reasons.

This issue occurred due to the participants’ technical issues, but they felt hesitate to contact the IT personnel.