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Indonesian Teachers' Perceived Technology Literacy for Enabling Technology-Enhanced English Instruction

Abstract. Today, technology plays a pivotal role in language teaching and many teachers are expected to integrate technology into their instruction. Although studies have shown positive results from the incorporation of technology into language learning, many studies have also raised concerns about lack of teacher preparedness to teach with technology. Grounded in the TPACK Framework developed by Koehler and Mishra (2006), the present study examines teachers' technology literacy for supporting technology-enhanced English as a Foreign Language (EFL) instruction in Maluku, Eastern Indonesia. The participants (n=43) were EFL teachers at public high schools and vocational high schools in Maluku. The data were collected using an online TPACK questionnaire (Schmidt et al. 2009) and semi-structured interviews with EFL teachers. The findings showed teachers' awareness of the significance of technology use in their EFL instruction. Teachers acknowledged a handful of tools already deployed to improve English skills inside and beyond classrooms, but noted needs for effective CALL enactment, such as continued training and accessible technologies. Based on the findings, recommendations include the provision of training modules for ongoing training of in-service teachers and improved school facilities.

Keywords: Technology literacy, CALL, EFL Teaching, TPACK

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1. Introduction

Computer-Assisted Language Learning (CALL) enriches learners and teachers with digital resources such as interactive videos, e-books, and language learning apps (Ridwan 2017). CALL has existed since the 1960s, experiencing several phases of development corresponding to pedagogical approaches (Warschauer 1996). In early stages, the computer was merely a tool used by students to work on assigned tasks individually (Warschauer 1996). Recently, CALL has entered an integrative stage, which seeks to integrate task-based, content-based, and project-based learning into language teaching via the use of computers. Warschauer and Healey (1998) add that integrative CALL focuses on a whole-language approach to instruction and teaching the four language skills: listening, speaking, reading, and writing. Today, CALL provides rich resources that teachers can utilize in their pedagogical practice and practical avenues for technology-mediated English-language teaching and learning. For example, teachers can use web-based language-learning quizzes, online discussion forums, and online chats to interact with students.

In Indonesia, CALL is gaining popularity in English-language teaching (ELT). Since 2013, CALL has been explicitly integrated in the English language teaching curriculum by Kemendikbud (Ministry of Education and Culture, find more information here). Kemendikbud (2016) states that the newly revised curriculum by the national education department requires technology-based learning for all courses, including English as a compulsory course in Indonesian High Schools. Nevertheless, studies of CALL implementation in Indonesia have identified major concerns such as teachers' limited technology literacy, a lack of support in terms of facilities, and teacher training to enable effective technology use in teaching (Hidayati 2016; Machmud and Basalama 2017; Ridwan 2017). However, little work has been done examining Indonesian English as a Foreign Language (EFL) teachers' technology literacy and use as part of their EFL pedagogical practice. Hence, the present study focused primarily on the investigation of EFL teachers' technology literacy to enact CALL based ELT and constraints encountered in Maluku, Indonesia. The study analyzed EFL teachers' perceptions of technology skills and needs for CALL-based EFL instruction providing information about the condition of CALL implementation in Indonesia and a snapshot of critical needs to improve Indonesian EFL teachers' success in CALL instruction.

1.1. Benefits of CALL for Learners and Teachers

Studies show that CALL has provided a wide range of useful language practice for learners such as writing tasks, grammar checkers, blogs, wikis, emails, e-books and multimedia text formats, and embedded video and audio (AbuSeileek and Abu Sa'aleek 2012; Almekhlafi 2006; Chapelle 2001; Derbel 2002; Mthethwa 2011; Nila 2013; Park and Son 2009). Further, technology facilitates access to authentic materials for learners to study at their own pace (Chapelle; 2001; Hidayati 2016; Park and Son

2009). AbuSeileek and Abu Sa'aleek (2012) add that CALL programs and websites can provide language learners practice matching their interests and tailored to specific skills such as grammar or vocabulary. This element of choice, learners deciding what to learn, which skills to develop, and the level they need makes CALL useful for encouraging learner autonomy (Almekhlafi 2006; Dashtestani 2012; Hidayati 2016; Lam and Lawrence 2002; Nila 2013). Miftachudin (2012) points out that CALL can enable students to manage their learning schedule to access their preferred online materials at any time and to revisit the same materials and repeat lessons, as necessary. Finally, research has shown that CALL instruction can affect learners' motivation, improving learners' interest to learn (Hidayati 2016). In particular, CALL provides enticing ways for learners to learn English through computer games, animated graphics, and problem-solving activities, making learning more interesting. AbuSeileek and Abu Sa'aleek (2012) further argue that communicative and interactive activities in CALL also enhance learners' engagement.

CALL also provides benefits for teachers. The countless learning resources available, such as videos, handbooks, and digital images not only support learners but also provide resources that teachers can access and use in their classes. Miftachudin (2012) adds that CALL allows teachers access to recent, appropriate, and relevant materials. Further, thanks to options such as teleconferencing and social networking, technology can serve as a platform bridging communication and interaction between teachers and learners (AbuSeileek and Abu Sa'aleek 2012). Finally, CALL can reduce teachers' burden by providing automatized individual feedback to learners, for example, via grammar and spelling checkers for learners' writing (Hidayati 2016) or pronunciation feedback though automatic speech recognition (McCrocklin 2016).

1.2. Challenges to Implementing CALL

Despite a growing interest in CALL, it can be challenging to implement and there are a number of underlying external and internal factors that can hinder its utilization and success (Park and Son 2009). External factors include time constraints, limited facilities, lack of financial support, teacher training and curriculum whereas internal factors encompass teachers' personal attitudes, experiences, and technology skills. Teachers' technology skills and experiences are critical factors determining success or failure in CALL implementation as teachers with technology skills tend to be more confident and knowledgeable in incorporating computers into their teaching (Achacoso 2003; Lam 2000; Kim 2002). Both external and internal factors can, however, potentially lead to the failure of CALL implementation (Park and Son 2009; Shin and Son 2007; Smerdon et al 2000).

Studies on CALL implementation in EFL contexts have reported varied success, but a common thread is a need for more training and support. For example, Mthethwa's (2011) case study on CALL in Swaziland showed teachers found CALL improved students' language acquisition in terms of grammar and vocabulary, but teach-

ers possessed limited skills and knowledge to incorporate technological tools in class. Mthethwa thus recommended intensive teacher training in CALL. Similarly, Nila (2013) investigated teachers' perspectives on introducing CALL in Bangladesh, finding teachers reported needing more training to support their use of technology, but also more support and collaboration with schools and governments, particularly in establishing proper facilities such as language labs. However, additional studies show that it is not sufficient for teachers to be comfortable with technology or to have access to technology, for successful CALL implementation teachers need training in how to teach effectively with technology to make sound pedagogical decisions (Rouf and Mohamed 2018; Yuksel and Yasin 2014). For example, Yuksel and Yasin (2014) revealed technology use in Turkish EFL classrooms is often teacher-centered and that learners are often not actively engaged with technology in the classroom.

1.3. CALL in Indonesia

Rachmawati (2016) noted increasing technology integration into the teaching and learning of English in Indonesia. This is particularly true given that, as of 2013, CALL is implicitly integrated in the English-language teaching curriculum by Kemendikbud, which requires technology-based learning for all courses, including English. Prior to the enactment of the 2013 curriculum, Information and Communication Technology (ICT) was a discrete subject emphasizing the introduction of digital technology taught only at high schools but is now embedded into the instruction of all disciplines at primary and secondary schools (Mahdum, Hadriana and Safriyanti 2019). As part of the new directive, the government supplied technology facilities to schools in Indonesia, working to provide sufficient infrastructure and facilities by building computer laboratories, providing computers for teachers' use, projectors, internet connections, etc (Mahdum, Hadriana and Safriyanti 2019).

Previous research on CALL implementation in Indonesia has found that instructors hold positive views towards CALL, but also report barriers to implementation including lack of technology skill, a lack of administrative support, insufficient facilities, and a lack of relevant training (Hidayati 2016; Machmud and Balasama 2017; Ridwan 2017). Machmud and Balasama (2017) found that there is a shortage of qualified Indonesian EFL teachers with adequate training in CALL. Al-Munawwarah (2014) and Hidayati (2016) argue that immediate action is needed to address teacher needs for implementing CALL in Indonesia.

Given the importance of teacher skill and reported needs for additional training, more research is needed to explore in depth Indonesian teachers' technology skills, an underpinning constituent towards the success of the implementation of CALL. Because previous studies explored the potential of CALL implementation in other areas of Indonesia, a vast archipelagic country, this study focused primarily on high schools in Maluku Province (focusing primarily on Ambon) of eastern Indonesia. Hence, the present study focuses on teachers' perceptions of their own technology skills to sup-

port CALL, availability of supporting elements such as administrative assistance and supply of facilities, and needs to promote CALL in Ambon, Maluku, Indonesia.

1.4. Research Questions

Therefore, this study seeks to answer the following questions:

1. To what degree do Indonesian EFL teachers' report skills in technology use for supporting CALL instruction?
2. Are there any significant differences in technology skills among teachers' experience and education level or school accreditation?
3. How do Indonesian EFL teachers perceive the usefulness of CALL?
4. What are teachers' current needs in order to enact CALL-based instruction?

We hypothesize that, similar to previous research, teachers will report low technology literacy negatively impacting their ability to provide CALL instruction. The need to implement CALL due to ministry guidance, however, may have pushed teachers to master technology. We further hypothesize that more education and higher levels of school accreditation may positively impact technology literacy and increase favorable views towards the incorporation of technology in English language learning. However, based on previous research we would expect that novice teachers may actually report greater technology skill.

2. Method

The study employed a mixed methods design collecting both quantitative and qualitative data in a single study, to provide a better understanding of both (Creswell and Plano-Clark 2011).

2.1. Participants

A total of 43 EFL teachers at high schools in Maluku Province, Indonesia participated in an online survey conducted through *Google Forms*. The participants included both novice and experienced teachers ranging in age from 25 – 61, including three males and 39 females (one participant declined to indicate gender). They represented 24 nationally accredited Senior High Schools and Vocational Schools in Maluku, with accreditation grades A (very good, 26%) and B (good, 74%). Of those, nine participants chose to proceed to the interview stage.

2.2. Survey and interviews

The study used the TPACK (Technology, Pedagogy and Content Knowledge) framework originally introduced by Koehler and Mishra (2009). TPACK was developed to

describe teachers' understanding of technology use in education and to employ efficient and effective language learning with technology. TPACK sets forth three primary sections of knowledge underlying CALL abilities: 1) Content knowledge (CK), which is teachers' understanding (prior knowledge) about materials and topics to teach in their classes (i.e. the knowledge of concepts, theories, ideas, and framework of a particular course to be taught), 2) Pedagogical knowledge (PK), which is teachers' ability to teach and manage learning activities with various methods and approaches (i.e. understanding students' learning style, classroom organization techniques, lesson designs, and student evaluation), and 3) Technological knowledge (TK), which is teachers' understanding of the use of technology for students' access of information and classroom use (i.e. knowledge requires teachers to employ the technology tools and sources available to support learners' practice of the language). From these three key areas, TPACK then includes the intersection of those major areas: 1) Pedagogical content knowledge (PCK), which represents teachers' understanding of the interplay of pedagogical practices and content area, recognizing that content should match with various teaching approaches, 2) Technological Content Knowledge (TCK), which is the teachers' ability to identify the links between certain technologies and content and match certain technological tools to appropriate content in designing lessons, and 3) Technological Pedagogical Knowledge (TPK), which is the understanding of which technology is appropriate in working towards particular learning objectives and suitable for a particular teaching method or context. These areas then culminate in the synthesis of all areas of knowledge that support CALL implementation, the TPACK (Koehler and Mishra 2009).

The TPACK framework was adapted into a questionnaire developed by Schmidt et al. (2009) and Sahin (2011) containing demographic information questions for teachers to answer and 45 Likert-scale (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) items investigating EFL teachers' technological skills and CALL practices in their classes. The questionnaire has been successfully deployed in EFL learning contexts including Turkey (Yuksel and Yasin 2014) and Bangladesh (Rouf and Mohamed 2018). The questionnaire was adapted into the current study and deployed through an online *Google Form*. At the end of the survey, participants were asked if they would be willing to participate in the next stage of the study, an interview.

The study used semi-structured interviews to gain more in-depth findings pertaining to teachers' practices, thoughts, and expectations regarding CALL-based EFL teaching. The interview included nine questions focused on technological skills and preparedness to promote CALL implementation in Indonesia. Participants partook in the interviews either face-to-face in Indonesia or online using a web-conferencing service. The interviews took around 50 minutes on average and were recorded for analysis.

2.3. Analysis

To analyze the quantitative data, the present study employed descriptive statistics to determine the mean and standard deviations. Inferential statistics, through a non-parametric test, Mann-Whitney U, were used to make comparisons between groups based on teachers' years of experience and education level as well as school accreditation grade.

The qualitative analysis, although influenced by postmodernism as it worked to identify similarities and differences in the experiences of teachers while focusing on the particular context of those experiences, was primarily pragmatic, drawing heavily from a general inductive approach. Thomas (2006) defined the general inductive approach as an approach that establishes links emerging from raw data to research questions. As such, the interview transcripts were analyzed to identify emerging themes or categories that connected to the aims of the study. Participants were provided with pseudonyms in the reporting of the results.

3. Results and Discussion

3.1. Indonesian EFL Teachers' Perceived TPACK

The present study explored Indonesian EFL teachers' technology skills to introduce CALL-based EFL instruction using the TPACK questionnaire which divides CALL knowledge into seven sub-divisions as follows: Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK). On the Likert-scale items, scores ranged from 1- Strongly Disagree to 5- Strongly Agree.

The results showed participants had the strongest beliefs in their pedagogical content knowledge (M=3.75, SD=1.20), pedagogical knowledge (M=3.71, SD=1.12), and content-knowledge (M=3.63, SD=1.05). Their belief in their technological knowledge (and the inter-secting subsections) was lower: TK (M=3.51, SD=0.92), TPK (M=3.49, SD=1.12) and TCK (M=3.41, SD=1.03). Further, participants rated their belief of their knowledge and skills in implementing CALL overall (the TPACK), the lowest (M=3.33, SD= 0.94). Notably, though, average scores for all technological sections/ sub-sections were above 3, a neutral score, leaning into slight agreement. Results are displayed in Figure 1.

At the outset of the study, we hypothesized that teachers may report limited technological literacy compared to their content knowledge and pedagogical skills. However, we acknowledged that requirements to enact CALL instruction may have pushed teachers to master more technologies. While participants did score lower for the technological skill areas of TK, TPK, TCK, and TPACK, these differences were slight,

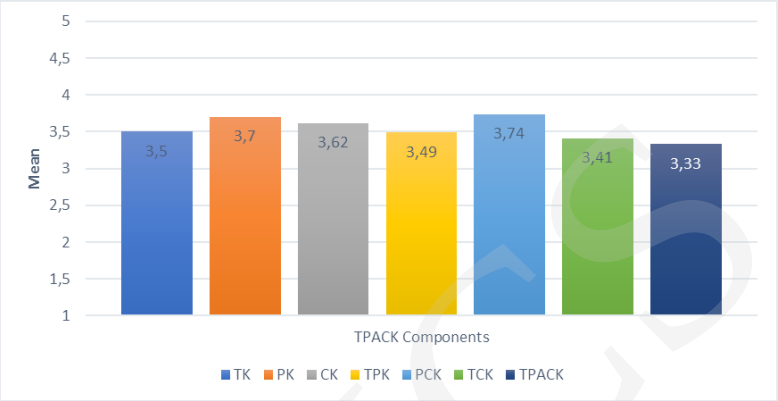

Figure 1. Indonesian EFL Teachers' TPACK Score

showing teachers may be gaining comfort and skill in technology as they work to address the curriculum guidance and provide CALL instruction. Comparisons based on teaching experience, school accreditations, and teacher education follow.

3.2. Effect of Teaching Experience

In order to examine differences in teaching effectiveness, the participants were divided into two groups, those with more teaching experience and those with less, using the median (12 years) as the cut-off. Table 1 shows the findings of teachers' overall TPACK and sub scores compared by teaching experience (less than or more than 12 years), with differences presented as absolutes and statistical significance determined by Mann-Whitney U.

Table 1. Indonesian EFL Teachers' Perceived TPACK by Teaching Experience

	Teaching Experience (in years)	M	SD	Difference of *M* by Experience Level	Sign.
TK	>12	3.48	0.97	0.05	0.92
	<12	3.53	0.90		
PK	>12	3.71	1.23	0.01	0.51
	<12	3.70	1.04		
CK	>12	3.74	1.13	0.20	0.30
	<12	3.54	1.01		
TPK	>12	3.41	1.20	0.15	0.66
	<12	3.56	1.08		
PCK	>12	3.81	1.30	0.11	0.45
	<12	3.70	1.14		
TCK	>12	3.38	1.05	0.06	0.77
	<12	3.44	1.05		
TPACK	>12	3.31	1.02	0.05	0.56
	<12	3.36	0.89		

The results show the greatest differences were found on the measures of content knowledge, technological pedagogical knowledge, and pedagogical content knowledge. Most of the technological measures showed little difference between groups; for example, TK only differed by 0.05. None of the differences were statistically significant (p-values ranging from 0.92 to 0.30).

At the outset of the study, we expected that less experienced (novice) teachers would report being slightly more tech savvy than their experienced counterparts, similar to Yuksel and Yasin (2014). Although the novice teachers did report slightly greater skill on the technology measures, as in the cases of EFL teachers in Turkey (Yuksel & Yasin 2014) and Iran (Nazari et al 2019), the differences were negligible and insignificant.

3.3. Effect of Teachers' Levels of Education

As previous training can heavily impact success in technological implementation, the results were also examined in relation to highest degree earned, comparing those with only bachelor's degrees to those with master's degrees. Table 2 shows the findings of teachers' overall TPACK and sub scores compared across education level (those with BAs versus those with MAs).

Table 2. Indonesian EFL Teachers' Perceived TPACK by University Degree

	Education Level (highest degree earned)	*M*	*SD*	Difference of *M* by Education Level	Sign.
TK	BA	3.37	0.89	0.39	0.04
	MA	3.76	0.94		
PK	BA	3.76	1.12	0.14	0.38
	MA	3.61	1.15		
CK	BA	3.51	1.00	0.39	0.07
	MA	3.86	1.15		
TPK	BA	3.46	1.10	0.10	0.63
	MA	3.55	1.20		
PCK	BA	3.90	1.25	0.24	0.42
	MA	3.66	1.19		
TCK	BA	3.33	1.03	0.02	0.33
	MA	3.57	1.05		
TPACK	BA	3.31	0.91	0.11	0.81
	MA	3.39	1.02		

The results show the greatest differences between the BA and MA holders emerged for technological knowledge and content knowledge. The smallest differences emerged in technological content knowledge and technological pedagogical knowledge. Only one measure emerged with a statistically significant difference (0.39, p=0.04), technological knowledge; holders of MAs reported greater confidence on this measure.

Our initial hypothesis that higher levels of education may correlate with higher technological literacy was supported. Notably, content knowledge and pedagogical knowledge showed no differences and when technology and content (TCK) and pedagogy (TPK) were considered jointly, the differences disappeared. Schools and governments hoping to provide more targeted training may focus on developing greater technology skill among teachers with less education. However, all teachers will likely benefit from training in using technology to achieve or support pedagogical and content goals.

3.4. Effect of School Accreditation

Given that the nationally best accredited schools may better support teachers to explore technology use in EFL classes, it was important to explore possible differences by school accreditation level (A or B). Table 3 shows the findings of teachers' overall TPACK and sub scores compared by school accreditation level (A vs. B grades).

Table 3. Indonesian EFL Teachers' Perceived TPACK by School Accreditation

	School Accreditation Grade	*M*	*SD*	Difference of *M* by School Accreditation	Sign.
TK	A	3.87	0.90	0.49	0.02
	B	3.38	0.90		
PK	A	3.73	0.99	0.03	0.96
	B	3.70	1.17		
CK	A	3.80	1.10	0.24	0.26
	B	3.57	1.05		
TPK	A	3.84	1.24	0.47	0.19
	B	3.38	1.08		
PCK	A	3.84	1.15	0.13	0.82
	B	3.71	1.23		
TCK	A	3.59	1.09	0.24	0.53
	B	3.35	1.03		
TPACK	A	3.51	1.10	0.23	0.46
	B	3.28	0.89		

The results show the greatest differences between teachers representing the A and B level accreditation levels were on the measures technological knowledge and content knowledge. The smallest differences emerged in technological content knowledge and technological pedagogical knowledge. Similar to education level, only one measure emerged with a statistically significant difference (0.49, p=0.02), technological knowledge; teachers at A level schools reported greater confidence on this measure.

Our initial hypothesis that higher levels of school accreditation may correlate with higher technological literacy was supported. Following similar patterns to trends based on education level, content knowledge and pedagogical knowledge showed no differences based on accreditation level and when technology and content (TCK) and

pedagogy (TPK) were considered jointly, differences in technology literacy were less apparent. Schools and governments hoping to provide more targeted training may focus on developing greater technology skill for teachers at schools that hold lower accreditation levels. However, all teachers will likely benefit from training in using technology to achieve or support pedagogical and content goals.

3.5. Indonesian EFL Teachers' Perceptions on the Usefulness of CALL

The results of the interviews revealed four major themes regarding usefulness of CALL: Knowledge Exchange, Interplay of Technology and English, Creating Engaging EFL Materials, and Promoting Autonomous Digital Learning. A description of each theme follows.

Participants reported learning and transferring knowledge with students about particular technologies available, meaning that both teachers and students are a source of learning. Aulia affirmed that students are capable in technology literacy. She said, "our students have better knowledge of technology rather than the teachers." Dewi discussed teachers' reversed role in the classroom when implementing CALL-based EFL class, "my students are qualified in technology. I asked them to help me with the technology." Because they embraced students being more technology literate, teachers reported being able to focus on developing engaging, creative classroom activities incorporating technology tools.

Participants revealed that they saw the use of technology and English learning as related, reporting an importance of mastering both in this globalized era. Dewi commented, "If we know technology, we know English. English and technology are equally important" a statement signaling the extent to which learning English is beneficial to technology mastery. Aulia and Putri's remarks echo this sentiment, "These two (English and technology) are important nowadays, such as information you find on internet is mostly in English..." (Aulia) and also, "the instructions in technology tools are in English" (Putri). These extracts highlight that implementing CALL allows students to not only learn English but also enables use of technology for wide-ranging purposes.

Participants reported making use of technology for effective and enjoyable materials delivery to students. Kirana and Endah provided examples of their technology use to design their lessons, including *Storyboard*, "I used *Storyboard* to design my teaching materials, adding animated pictures so that my students could understand the context very well" (Kirana) and *PowerPoint*, "I used *PowerPoint* most of the time. You just need to be creative like add pictures, animation, video…" (Endah). From participant comments, it is evident that teachers already employ a number of tools or apps to design engaging materials.

The interviews reported that digital learning offers abundant options of language learning applications/programs to students and enables students to learn English at anytime and anywhere beyond their classroom. Putri used two apps in her class: " I always tell [students] to download some educative applications like *Edpuzzle* and

Google Classroom", indicating that in this digital era, classes can be less textbook oriented, and teachers can work to help students manage self-learning. Maria pinpointed a similar shift in her teaching approach with the use of practical technology, "now students can find the new words through their handphones."

The interviews showed participants' positive impressions, beliefs in the benefits of CALL, and varied reasons for enacting CALL, including current trends in teaching, curriculum requirements, and students' learning needs, which implies a decent level of readiness to incorporate technology. Yet, the results reinforced teachers' moderate knowledge of technology, resonating with Yuksel and Yasin's (2014) findings that EFL teachers in Turkey showed moderate technology knowledge despite high scores on pedagogical and content knowledge.

3.6. Indonesian EFL Teachers' Enactment of CALL

The results of the interviews revealed four principal themes regarding enactment of CALL: Teachers' Reasons for Adopting Technology in EFL Class, Selective Use of Technology, Teachers' Sources for CALL Enactment, and School Support for CALL. Each theme is detailed below.

The interviews highlighted personal arguments for adopting technologies in EFL classrooms. Kirana positioned students' needs as the utmost importance, "I encourage myself to find any information about any news and technologies that could meet [students] needs." Maria commented, "if we use technology, there is a lot of information that we can get at hand," while Endah added that her CALL enactment in EFL is the actualization of the newly amended curriculum, requiring classes to incorporate technology, "[Curriculum 2013] says that all subjects or all courses should be integrated with the use of IT."

Participants used a variety of tools in the classroom. They mentioned resources such as "*StoryBoard"(*Kirana), "*Kahoot* and *PowerPoint*"(Budi, Dewi and Endah), "*Edpuzzle*" (Putri), "*Messenger*" (Maria and Kartika), and "video and audio-recorder[s]" (Ningsih and Dewi). These responses illustrated a handful of practical tools and apps already assisting EFL teaching in Indonesia.

Teachers reported their teaching is inspired by previous experiences, education, and training. Examples include, "I joined RELO," (Kartika), "I attended MOOC and workshops" (Budi), and "[I] participated in a mobile-assisted learning training,"(Dewi) while others pursued self-learning and self-discovery by networking with colleagues from different disciplines and surfing the internet. Ningsih explained, "I was just looking what is going on in the internet, finding information, and then the ideas just crossed my mind. Then, I decided to implement them in my class."

The interviews revealed decent support provided by some schools. Putri acknowledged, "our school provides all the facilities because we are applying a curriculum which requires technology for teaching and learning process," asserting that the provision of those supplies was due to implementation of curriculum 2013. On the other

hand, Ningsih noted, "I myself did everything using all my money, using my own class." She managed to provide what she needed at her own expense.

Despite reporting limited technology literacy, participants reported using some CALL tools such as *Storyboard*, *Kahoot*, *EdPuzzle*, *Google Classroom*, and *PowerPoint*. Teachers reported careful thought and consideration regarding technology in their teaching and were guided by not only their experiences but also by trainings they received. Some reported limited support from their schools which may explain the limited use of learning management systems, many of which are costly and usually adopted by entire schools (not individually). Trainings that show teachers a wide variety of tools that can be used to reach a range of pedagogical goals may help teachers expand their use of technology within their classrooms.

3.7. Challenges for CALL Enactment

The results of the interviews revealed two major themes regarding challenges, each detailed below.

3.7.1. Students' Low Technology Literacy

Kirana, Maria, and Kartika reported that their students had inadequate knowledge and experience using technology, "some [students] were very shocked when presented the *PowerPoint* presentation because they haven't seen that kind of technologies before" (Kirana). Similarly, Kartika added, "they don't even know how to turn on the computer, how to turn off the computer." Given these backgrounds, Maria assessed, "most of our students are very, very low in understanding and using technology such as computer." This indicates that the lack of students' technology literacy is a major issue impeding CALL in Indonesia.

3.7.2. Fellow Teachers' Ignorance with the Use of Technology in EFL instruction

Participants also described agonizing that their colleagues hardly put effort into enacting CALL-based EFL instructions, "sometimes [teachers] ignore the use of technologies in teaching, and sometimes like they don't want to do any more effort to provide the students with the technology" (Kirana). Putri also commented, "in fact, that there are other colleagues who are still applying old-fashioned teaching." Kirana and Putri's responses highlighted a further issue hindering CALL implementation in schools as teachers play a significant role in actualizing it.

3.8. EFL Teachers' Needs for Effective CALL Implementation

Referring to the challenges described above, the participants accounted for their needs to effectively and efficiently enact CALL-based instruction. Table 4 displays the most reported teachers' needs in adopting CALL with counts of participants.

Table 4. Teachers' Reported Needs for CALL Enactment

Teachers' Needs	n
Internet Connectivity (Wi-Fi)	5
Language Laboratory	5
Technology Tools (Projectors, Laptops, etc.)	6
Teacher Professional Development Training	6

Teachers voiced the need to shore up infrastructure, providing facilities at schools and intensive training for teachers. Some schools represented did not have a language laboratory. In expressing their concerns in implementing CALL, participants reported needing language laboratories, supplies of computers, and reasonable internet connectivity, in line with concerns raised in Hidayati (2016), Machmud and Balasama (2017), and Ridwan (2017). Bolstering facilities may also address issues of student comfort and proficiency with technology. Given concerns of student technology literacy, the schools and the government could encourage technological literacy through courses focused on introducing technology, building familiarity with computers in labs in early education before shifting to technology-enhanced content classes. Participants also called for free language learning platforms and teachers' skill development by providing in-service training.

Although some participants pointed to useful trainings in helping to get started with technology, participants indicated a need and desire for additional ongoing training, which could be accomplished by modules (possibly online) that can be taken over time. This training should focus not only on technological knowledge and on expanding teachers' comfort and familiarity with a wide range of technological tools and resources, but also on making strong pedagogical decisions when incorporating technology (TPK) and linking technologies to content areas (TCK), areas where teachers indicated weaknesses compared to their general pedagogical and content knowledge.

Mishra and Koehler (2006) argue that possessing technology competence, combined with sound pedagogical approaches and appropriate content, is a must in adapting to teaching contexts and actualizing successful 21st century learning. Egbert et al (2018) called for more studies exploring teacher technology literacy and use in classroom. Because previous studies have shown that EFL teachers lack technology skill to operationalize CALL-based teaching (Nila 2013; Al-Munnawarah 2014; Ridwan 2017; Machmud and Basalama 2017), this study aimed primarily at examining teachers' technology preparedness to promote CALL in Indonesian EFL instruction and provided a baseline for understanding the technology skills of Indonesian EFL teachers in Maluku.

CALL is taking root in Indonesia as teachers report moderate confidence with technology and begin to implement CALL tools in their classrooms, corroborating the findings of Yuksel and Yasin (2014) regarding EFL Teachers in Turkey. Yet, technological knowledge, along with the ways technology can be used to support pedagogical and content goals, was still a weak point in professional training and development. This concern is in line with studies on CALL in EFL settings that call for teacher professional development in digital language teaching (Al-Munnawarah, 2014; Hidayati, 2016; Park & Son, 2009; Ridwan, 2017; Yuksel & Yasin, 2014). Thus, this study suggests that additional training, facilities, and learner training/support would support its deployment and development.

4. Conclusion

The findings of the present study principally revealed that Indonesian EFL teachers possess moderate knowledge of technology which is evident in their self-perception of TPACK components. This study regards accreditation ranks ("A" vs "B" accreditation) as underexplored in the literature and an area for further future research. The recent findings indicate a significant difference between teachers' technology literacy, with greater skill reported for "A" accredited schoolteachers. School accreditation and education levels had a larger impact than teaching experience, which did not lead to significant differences. The data also discloses that teachers with MAs are more technology literate than those with BAs, suggesting that higher education provides insights and up-to-date information in EFL teaching and that those holding only BAs may have greater need for technology training.

Teachers expressed positive views towards CALL enactment, reporting benefits for both students and teachers. Teachers also noted the use of practical tools in class activities supporting students' learning and progress in EFL classes. Thus, the study shows that technology has been reasonably incorporated in EFL classes in Maluku, Indonesia, regardless of school accreditation, teaching experience, and levels of education. Yet, trainings to boost comfort and skill in technology (particularly for B accredited schools or teachers with only BAs) may help build confidence and lead to greater variety or quantity of technology use in the classroom.

In understanding technology literacy of EFL teachers, the study recommends future studies involve a wider pool of participants ranging from primary to tertiary educational institutions and teachers who represent other administrative regions across Maluku province. Lastly, the findings raise concerns about limited facilities, open access, and a shortage of teacher training that local authorities need to address for better CALL implementation in the near future.

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