Digital Language Teacher Professional Development from a CALL Perspective: Perceived Knowledge and Activeness in ECCR

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Abstract

Using the digital language teacher development framework, this study explores the digital language teacher professional development from a CALL perspective. Its goal is to look at language instructors' perceived knowledge and activeness in digital exploration, communication, collaboration, and reflection. Fourteen English teachers were approached and consented to take part in the research. The study used an online self-evaluation survey and semi-structured focus group interviews to gather their perspectives on developing their digital literacy skills based on the ECCR model. A thematic analysis was used to sort out the themes and sub-themes that emerged from the interview data transcriptions. As a result, the research highlights the gaps between what teachers know, think, and believe and what they do in their digital practices. However, self-determination in exploring digital technologies (e.g., amotivation, intrinsic, and extrinsic impetus) also impedes language instructors' adoption of CALL technology. The implication of this study calls for the inclusion of digital motivation and awareness in CALL teacher education, continuing professional development, and critical pedagogy in digital literacy development.

Keywords: Digital literacy, ECCR, TPD, CALL, digital language teacher

Introduction

In the digital era, the relevance of the teacher professional development program has become critical in the areas of Computer Assisted Language Learning (CALL) and Technology-Enhanced Language Teaching (TELT). It was also one of the main topics covered at the 2021 Asia Pacific Association of Computer Assisted Language Learning (APACALL) webinar. One of the essential issues discussed in the webinar was the digital language teacher development framework. It assists language instructors in discovering, sharing, cooperating, and reflecting on their digital knowledge and skills (Son, 2018, 2020). Today, language instructors primarily teach in a digitally rich setting, requiring sufficient digital expertise and abilities to provide relevant digital learning experiences

for their students. Therefore, the need for CALL workshops or self-directed learning in the area of digital literacy is urgent. For example, they organized a continuing professional development through the online community of practice (Anas, 2018; Kirschner & Lai, 2007).

Language teachers that use online learning technologies such as Learning Management Systems (LMS), synchronous online teaching (Zoom, Google Meet, Skype), and asynchronous methods (WhatsApp, Facebook) now confront several challenges (Bright, 2008). For instance, some English teachers could not utilize the LMS platform (a Moodle-based LMS) due to unfamiliarity and the lack of digital competence. Therefore, assisting and increasing teachers' abilities to use new technologies, ICTs, CALL tools, and multimedia in language education have been performed. Yet, massive acceleration training today might not bring significant contributions to successful language teaching with technology. In some ways, this condition might happen in many different contexts of applied linguistics. The problem does not lie in the quality and intensity of the CALL training. Still, it is more likely influenced by the digital literacy skills of teachers to adapt quickly to technology (Son, 2015). However, enabling language teachers to teach with technology should consider building their digital literacy knowledge and skills to adapt to CALL technologies promptly. Otherwise, the teacher's adaptation to digital language teaching tools may hamper their capacity to accelerate their professional development in the field of CALL.

Literature Review

From Digital Literacy to Digital Competence

Gilster (1997) coined the phrase "digital literacy" in the mid-1990s, defining it as "dealing with information and integrating it in different formats utilizing digital technology.". He also emphasized that teachers should have the ability to trace and critically evaluate the source of information and place it in context (Pool, 1997). For instance, language instructors should do more than just browse the internet for digital materials and tools. (e.g., eBooks, videos, podcasts, journal articles, web pages, etc.). They must, however, be aware of their sources and critically analyze if they are culturally and pedagogically acceptable for their educational environment. With factual information and digital literacy skills, they will discern which information is trustworthy and not. Thus, they will then be able to select and develop appropriate digital technology tools for their professional job. The ability to use digital technology tools is more than just knowing how to use software, web-based apps, and portable gadgets. Nonetheless, digital literacy is more likely to be concerned with critical thinking, socio-cultural, and psychological matters. Therefore, digital literacy abilities may be taught and acquired through digital literacy education (Lee, 2014).

Many publications have been reported in teacher digital competence and its framework for development (e.g., Boechler, Dragon, and Wasniewski 2014; Cartelli 2012; Gillen and Barton 2010; Lee 2014; Eshet-Alkalai 2004; Falloon 2020). Son (2020) describes digital language teaching competencies as the capacity of language teachers to integrate multimedia pedagogies and innovations in the language classroom. He highlights the need for digital language teachers to leverage technological and

pedagogical abilities within a digital learning environment. It appears to be closely related to Hubbard (2008) where he terms it "*technology-savvy teacher*" to describe someone who has a well-developed understanding of CALL application. He also contended that the future of CALL was inextricably linked to the end of language teacher education. For instance, accelerating the language teacher professional development is one of the strategies to enhance the teachers' digital literacy skills. Therefore, they will need a pathway to investigate CALL solutions for their digital instruction.

According to Pianfetti (2001), if a teacher wants to become a competent digital language instructor, he or she must have strong digital literacy abilities. She asserts that by becoming digitally literate, the language teacher can actively participate in professional development in technology. Moreover, a recent study by Akayoğlu et al. (2020) pointed to the importance of equipping the pre-service teachers with pedagogical understanding and skills of using digital tools for teaching. They also contended that language education must connect the digital device to language pedagogy by simulating the integration of digital technologies in the educational setting. Therefore, technological and pedagogical skills are the two interrelated components in teacher digital literacy education. It allows the teachers to construct their digital identity and self-efficacy in conducting digital and media literacy (henceforth DML) classroom activities (Ranieri & Bruni, 2019). Their study also revealed that most teachers are confident in completing DML due to their personal digital experience and competencies. On the other hand, investigating critical components of digital competencies, Howard et al. (2021) argued that multi-directional and dynamic relationships are the two specific factors affecting the improvement of pre-service teachers' experiences in developing their digital competencies. As Jenkins (2011) pointed out, multi-directional and dynamic relationships significantly influence teachers' beliefs in what they do in practice.

The Exploration, Communication, Collaboration, and Reflection (ECCR) Framework

A digital language teacher is closely related to digital literacy skills that enable them to explore, communicate, collaborate, and reflect on their teaching techniques. One of the models that correspond to the framework (Son, 2018, 2020) is proposed by El Shaban & Egbert (2018) about CALL teacher professional development. They pinpoint two development stages: 1) why, what, and how, and 2) technology integration enabling the environment. The two models have some differences in framework conceptualization; the first stage (why, what, and how) is closely related to exploration and communication. The second stage mainly corresponds to collaboration and reflection. This section explores each element of the model to provide a clear overview of how the model develops the language teacher's digital competencies.

Table 1
The elements of digital language teacher professional development (adapted from Son (2018, 2020))

Elements	Description
Exploration	This component addresses language teachers' active participation and engagement in gathering knowledge and skills on digital technologies and related resources linked to

	language learning pedagogy. It may include software, multimedia files (vodcast and podcast), CALL/MALL applications, web-based applications, etc.
Communication	This component focuses on how language teachers develop their communication skills and interact with students, colleagues, ELT practitioners, and researchers. In a nutshell, communication skills and techniques are all about language teachers' capacity to use and sustain connections with students and other experts in the area.
Collaboration	The capacity of language teachers to use digital technologies to organize and manage collaborative activities, exchange knowledge and experience, and enable online collaboration with other experts in the field is essential to collaboration skills and strategies. Language teachers, for example, work together to organize and deliver online team teaching utilizing digital technologies such as LMS and online synchronous and asynchronous learning platforms. Collaboration skills are often associated with online professional development networks in terms of digital language teacher professional development. They can work together to gain new information and skills.
Reflection	This component addresses language teachers' capacity to reflect on their use of digital technologies critically. The language teacher's self-reflection skills will help them recognize the impediments to adopting digital technologies in their teaching and learning environments.

First, the exploration element is developed to provide a clear view of how it connects to digital language teacher development processes. To date, the rapid changes in educational technology require the language teacher to have a quick response to adapt to new digital tools that may challenge their exploration to re-integrate the latest technology with the language learning pedagogy. It can also impact the language teachers' negative attitude towards the sheer amount of technological changes that hamper them from the actual use of new digital tools in their teaching contexts (Comas-Quinn, 2011). Therefore, collecting information on technical options for digital language teaching is essential, thus accentuating the teachers' digital literacy skills to adapt to new development in education technology quickly. For instance, exploring presentation software to enhance language learning in oral presentations and guided writing was essential in promoting the students' collaboration and team building (Schcolnik & Kol, 1999). Today, the rise of Artificial Intelligence (AI) technology exploration in assisting language learning has been widely acknowledged as potential digital technology for digital language learning. Moreover, exploring the use of chatbots in teaching grammar, Kim (2019), for example, found it significant in improving the students' grammar skills, thus promoting the learners' engagement within the chatbox. Along with the rise of AI, Augmented Reality (AR) is also taking place in ELT territory as one of the emerging technologies in the field. According to Fan et al.'s (2020) meta-analysis on AR, they discovered five augmented reality (AR) learning strategies: 3D multimedia content,

hands-on engagement with physical learning materials, gamification, spatial mapping, and location-based features.

The evolvement of digital technology from time to time has been speeding and changing very fast. It has brought a significant impact on the way people teach and learn with technology. Some changes in pedagogical approaches to using the digital tools effectively were also documented in the literature. The history in pre-service language teacher education and digital language teacher professional development is not designed to integrate specific technology for teaching. However, they are primarily trained to improve their digital literacy skills to survive within a digitally-rich learning environment. For instance, the language teachers might not be prepared to use AI, AR, web-based applications, CALL/MALL applications, and other digital tools. However, according to their learning needs and contexts, they can adapt quickly to digital devices with their digital literacy skills.

Second, digital communication skills are the spark for increasing online teacher professional development in the digital world. According to Hargie (2006), communication is seen as a skilled performance, thus accentuating the teachers' ability to communicate effectively using digital technologies. One of the digital communication technologies is Computer-Mediated Communication (CMC). It incorporates numerous semiotic/semantic modes (sound, text, photo) and digital technology interfaces (smartphone, tablet, web-based conferencing platform, social media, immersive virtual games, and virtual working environment) (Squires, 2016). Yet, accelerating virtual communication using CMC technologies can be conducted synchronously (Zoom, Google Meet, WebEx, Skype, etc.) and asynchronously (LMS and social media platforms). Regarding the benefits of using a synchronous CMC, Lenkaitis (2020) suggests accelerating the virtual sharing between TESOL teacher candidates and encouraging them to reflect on their engagement in the learning process.

Another element of being a digital language teacher is the teachers' ability to collaborate digitally and effectively. Asking and sharing information in the digital society requires adequate digital and communication literacy skills, thus building connections locally and globally. Therefore, language teachers must be active in building links to experts, ELT professionals, researchers, and relevant communities in the field, such as attending international conferences, webinars, symposiums, online collaborative research, and social media-based teacher professional development. For instance, the activeness of attending the online community of practice (see Kirschner and Lai 2007; Hou 2015), using wikis for online collaboration (Raitman et al., 2005), and supporting tutors conducting online team teaching of collaborative working (Cuffe & McAvoy, 2018). According to Yoon et al. (2020), teachers' professional growth can be supported by encouraging the development of social capital. Given the importance of social capital in teacher professional learning, Demir (2021) has recently synthesized research on how social capital closely relates to teacher professional development, the implementation of change, the introduction of novice teachers, teachers retention, and job satisfaction, and improved students' achievement.

Finally, the fourth essential element is the language teachers' self-reflection on their digital exploration, communication, and collaboration. According to Gutierez and Kim (2017), teacher self-reflection can link and concoct ideas against what they know and believe (prior knowledge). For example, some teachers believe that using digital video in language learning is compelling and engaging. However, it must be critical that

in some other contexts the video-based learning is not successful. Bruce and Chiu (2015) pinpoint that the teachers' practical experience with digital video remains implications for contents and pedagogical applications. The video contents might not be appropriate for learners' social, cultural, and political backgrounds. As Xie et al. (2017) also pointed out, evaluating digital content is one of the teacher professional development activities to improve teachers' capacity to learn technology integration.

The following research questions guided this research:

1. What is the language teacher's perceived knowledge in exploring, communicating, collaborating, and reflecting on CALL technologies?
2. What is the language teacher's perceived activeness in exploring, communicating, collaborating, and reflecting on CALL technologies?

Method

Research Design

Due to the social distancing policy of the Covid-19 pandemic, the study was conducted entirely online (see Fielding, Lee, and Blank 2017). Grounded in the digital language teacher development framework, this study explored the digital language teacher professional development from the ECCR (Exploration, Communication, Collaboration, and Reflection) theoretical lens (Son, 2018, 2020). We examined the factors affecting the digital language teachers' competency level by investigating each element. Therefore, an online self-evaluation survey and virtual focus group interview were developed. It examined language teachers' professional development journeys and their experiences with hurdles and limitations to increasing their digital competencies.

The survey consists of five sections: 1) a request for agreement to participate in the survey, 2) the investigation on the teacher's perceived knowledge and activeness in exploring CALL technologies for their teaching and professional development. It examines instructors' perceived competence and interest in language learning software (henceforth LLS), original digital recordings, language learning games, social media use in ELT, web-based applications, LMS, vodcast/podcast, AI, and AR technologies for teaching, 3) the inquiry into teachers' digital communication abilities with students, colleagues, administrators, CALL practitioners, language educators, and researchers. It aims to ascertain language instructors' perceived activeness, knowledge, and skills in developing professional communications with key stakeholders, 4) exploring the collaboration of teachers with pupils and other experts in the field. It examined language instructors' knowledge and willingness to collaborate online, and 5) investigated teachers' actual knowledge and capacity of critical self-reflection and self-monitoring concerning their professional growth path.

Following the self-assessment survey, a Zoom-based focus group interview with the language instructors was held. The teachers were asked to participate by linking to a Zoom synchronous online meeting. We began the session by gathering their perspectives on their professional growth based on the framework and their survey results. However, the discussion was on the variables influencing their discovery, communication,

cooperation, and reflection in developing their digital literacy skills to enhance their knowledge and skills.

Participants

Before the research was conducted, the researchers negotiated access to the participants partially. In the beginning, we explained the study's purposes to give a detailed description of how the self-assessment survey and focus group interview would be conducted. Fourteen language teachers were selected and consented to participate in the self-evaluation survey and the focus group interview. The participants are the English language teachers of an Indonesian Vocational Higher Education (henceforth VHE)-so-called polytechnic education. They all teach ESP within the multidisciplinary engineering courses (mechanical, electrical, civil, and chemical) and non-engineering (accounting and business administration). In the business administration department, for example, all lecturers are responsible for teaching English for business (e.g., product presentation, business plan presentation, organizing and chairing the business meeting), English business correspondence (writing business letters/emails, professional CV, sales contract, etc.), and business English conversations. Ana and Gusti teach English for engineering, while Hijrah, Tam, and Lia are responsible for teaching English for accounting and finance purposes.

Table 2
Participants characteristics

No	Participants	Gender	Age	Educational Level	Length of Teaching (years)	Department
1	Nini	Female	46	Doctor/ PhD	17	Business Adminsitration
2	Ana	Female	47	Master	14	Mechanical Engineering
3	Akram	Male	57	Master	29	Business Adminsitration
4	Tam	Male	58	Doctor/ PhD	32	Accounting
5	Amril	Male	58	Master	31	Chemical Engineering
6	Gusti	Female	38	Master	11	Mechanical Engineering
7	Sinta	Female	45	Master	11	Civil Engineering
8	Hijrah	Female	32	Master	5	Accounting
9	Mus	Male	39	Master	11	Business Adminsitration
10	Ima	Female	37	Master	11	Accounting
11	Ida	Female	53	Master	28	Business Adminsitration
12	Lia	Female	55	Master	28	Accounting
13	Arman	Male	54	Doctor/ PhD	28	Business Adminsitration
14	Alim	Male	54	Doctor/ PhD	30	Electrical Engineering

Note: All the names are pseudonyms

Table 2 shows the participants' demographic characteristics of gender, age, educational level, and the length of teaching experience. Most of the participants were senior teachers aged above 50 years old and have been teaching for more than twenty years on average. Ida, for example, has been teaching business English in the business administration department for about 28 years. She rarely gets institutionally funded training related to learning technology during her career and only relies on self-taught learning and self-funded training. However, she and other lecturers actively participate in a teacher group for professional development initiated by the language teacher community. The community aims at facilitating the teachers' professional development for ESP teaching skills. In addition, most of the lecturers are not digital natives and hardly ever got CALL-related courses in their pre-service teacher education. Along with the advances in educational technology, they still struggle to improve their CALL competencies to survive in a digitally-rich environment.

Data Collection and Analysis

All the data are collected entirely online due to the enactment of the social distancing policy, thus preventing contact with the participants. Methodologically, online data collection can be done through email and web-based surveys with some advantages: 1) quick response time, 2) cost efficiency, 3) ease of data management, 4) flexible and controllable format, 5) accessible technology, and 6) user-friendly platform (Granello & Wheaton, 2004). Therefore, we collected qualitative data using a web-based self-assessment survey (Google form-based survey: https://bit.ly/3AtLTJf) and a virtual focus group interview with Zoom. The self-evaluation responses were evaluated and presented in infographics (line and bar graphs).

As the interviews yield many text data, many rounds of thematic analysis have been done to determine emergent themes and subthemes for the data transcribed and coded (Miles et al., 2014 p. 75). We were able to construct the information in the data by reading the coded language and seeing the recording. The data analysis procedure is the following:

1. Getting familiar with the data by exporting the videotaped interview recording from the Zoom cloud database
2. Watching the tapes repeatedly to identify the major themes
3. Transcribing the recording for data coding
4. Coding the texts
5. Categorizing the coded texts
6. Writing up

Results

This section presents the language teachers' exploration, communication, collaboration, and reflection on their digital professional development journey. The results presented in this section are context-specific and might be different from other ELT contexts. However, they can be used as an evaluation tool and critical considerations

for developing language teachers' digital competence in the future. The teacher's efforts are inextricably linked to several problems and barriers that will serve as resources for critical assessment in the future for more significant growth.

Teachers' Exploration of CALL Technologies

This part demonstrates the teachers' expertise and willingness to experiment with digital technology for educational objectives. For instance, *are you active in exploring language learning software, digital videos, games, social media, web-based apps, LMS, podcasts, AI/AR, and handheld devices for your teaching?*. Thus, they came up with different responses to how they explored and engaged in learning and utilizing new language-teaching technologies, mainly in the VHE context. Based on the self-assessment survey results, the following Figure 1 and 2 illustrate the discrepancies between what the teachers know and do. However, this study does not investigate what caused them to be inactive in digital exploration

Figure 1
Teachers' perceived knowledge in exploring digital technologies

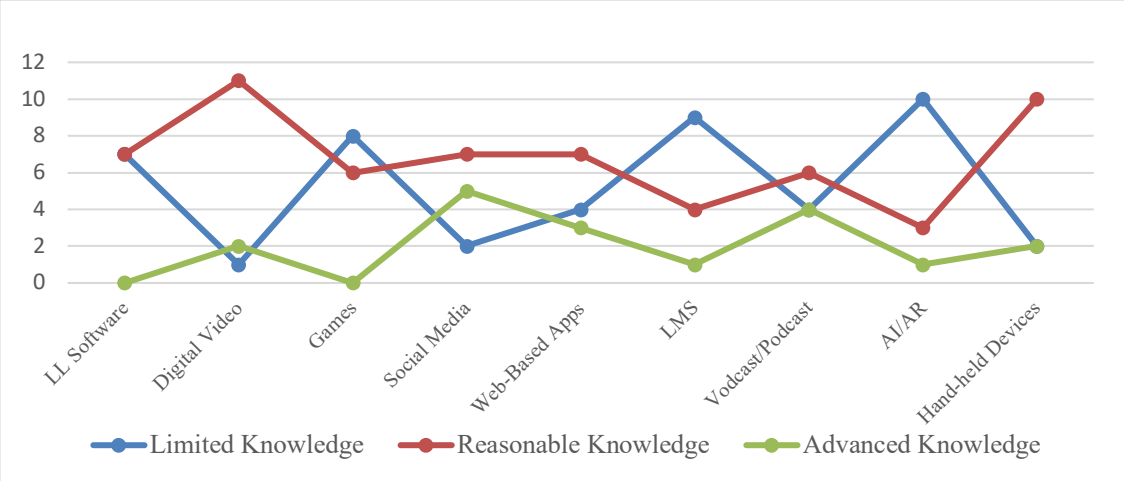
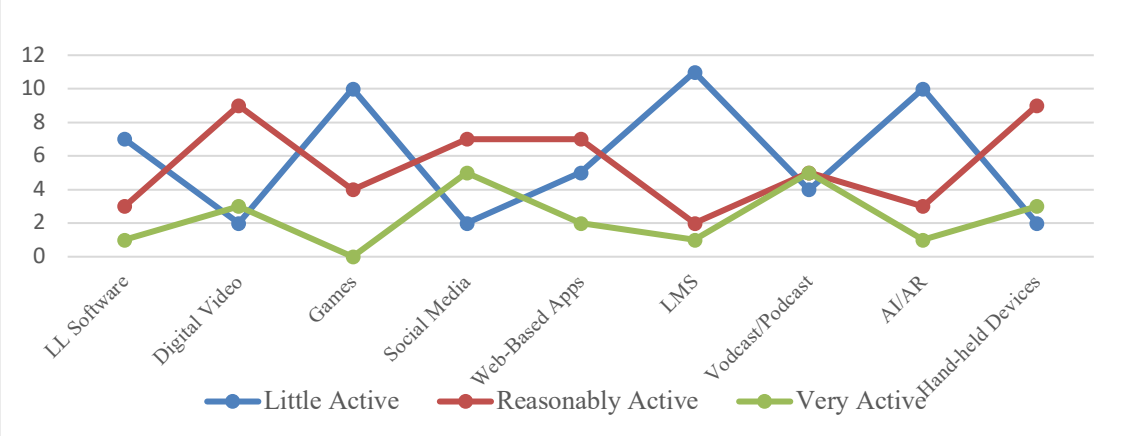


Figure 2
Teachers' perceived activeness in exploring digital technologies



The charts show the teachers' perceived knowledge and activeness in exploring nine types of digital technologies: language learning software, digital video, language learning games, social media (e.g., Facebook and WhatsApp), web-based applications, Learning Management System (e.g., Moodle, Dokeos, and Google Classroom), vodcast/ podcast, Artificial Intelligence (AI), Augmented Reality (AR) and handheld devices for their teaching purposes. Overall, teachers' attitudes toward digital technology exploration tend to be less active, despite having adequate expertise to do so. As shown in the chart, LLS, games, LMS, and AI/AR are the types of technology that seem less desirable and attractive to teachers. In contrast, digital video, social media, web-based applications, and handheld devices show the opposite response. Yet, social media and vodcast/podcast are still the most popular technology trends at the moment.

The following extracts are from the April 20th, 2021 focus group interview, and the Indonesian transcriptions have been mediated into English. FGI question: *According to some scholars, exploring LLS and the game is compelling and exciting for ELT? How do you think they are relevant to your context?*

> I don't really pay much attention to exploring and using language learning software for my teaching, but I do suggest my students using some applications (that's the free version) for their self-access learning, such as using *Google Translate*, vocabulary learning software, and software-assisted writing. On the other hand, I don't get used to utilizing software-assisted teaching in my class because I lack the pedagogical knowledge and skills to integrate it into my teaching. (Nini)

> I don't think games will work well in the VHE context, so I never explore and use the game in my class. It might be interesting for young learners, I think, but for university students, probably not. (Ana)

> For me, I sometimes explore Android-based games or applications for the student's vocabulary and grammar learning. As we know that most students are digital natives and actively engaged in MALL nowadays, so I do suggest my students download and install some applications from the play store. It is more likely to be a strategy for encouraging the students' in-person and self-directed learning beyond the class. Regarding their effectiveness, further research is required. (Akram)

FGI question: *What about Artificial Intelligence (AI) and Augmented Reality (AR) applications? Why do these technologies seem to be less attractive to you?*

> I have no idea about AI and AR; I have very little knowledge of integrating them into ELT. For now, I am not confident yet. I think professional development in that area might be helpful. (Tam)

> I once explored a Chatbot for ELT and suggested it to students as an in-person learning tool, but I don't think it works well. (Amril)

All the excerpts above represent the teachers' views on CALL technologies for ELT. Nini and Ana, for example, recounted that language learning software and games are not user-friendly and less attractive. They realized that not all technologies could be applied in a vocational context. They thought that the utilization of digital technology should consider the educational level and psychological aspect of learners. Nini also expressed her concern that using LLS and games in ELT requires both technological and pedagogical skills. She asserted that using digital tools must be meaningful for the student's learning and practice. Yet, Akram had attempted to explore Android-based applications, although he didn't use them in his teaching. He depicted his understanding of MALL applications for vocabulary and grammar learning and suggested his students explore them. He assumed that students could use the apps due to their status as digital natives. On the other hand, Tam and Amril, for example, shared similar experiences regarding AI and AR in ELT in that they have limited knowledge of integrating them in their teaching. However, this evidence showcases the discrepancies between what the teachers know and what they do in their digital exploration. In other words, the digital language teacher identity construction fails to correspond to the DLTDF framework.

Communication Skills in Digital Technology

This section presents the results of a self-assessment survey of the language teachers' perceived knowledge and activeness in building digital communication with learners and other professionals. For example, *are you active in communicating with your students virtually, doing online discussions with colleagues, consulting with LMS admin, getting in touch with CALL researchers/practitioners, professionals in online teacher professional development, and scholars in academic forums*?. As a result, the graphs generally represent teachers' perceived comprehension and digital contact with students, colleagues, CALL specialists, and other professionals through online teacher professional developments and academic forums. Overall, there is a significant gap between perceived knowledge and activeness in all categories except communication with their students. They tend to be less active in digital contact even though they have sufficient knowledge to do so.

Figure 3
Teachers' perceived knowledge in digital communication

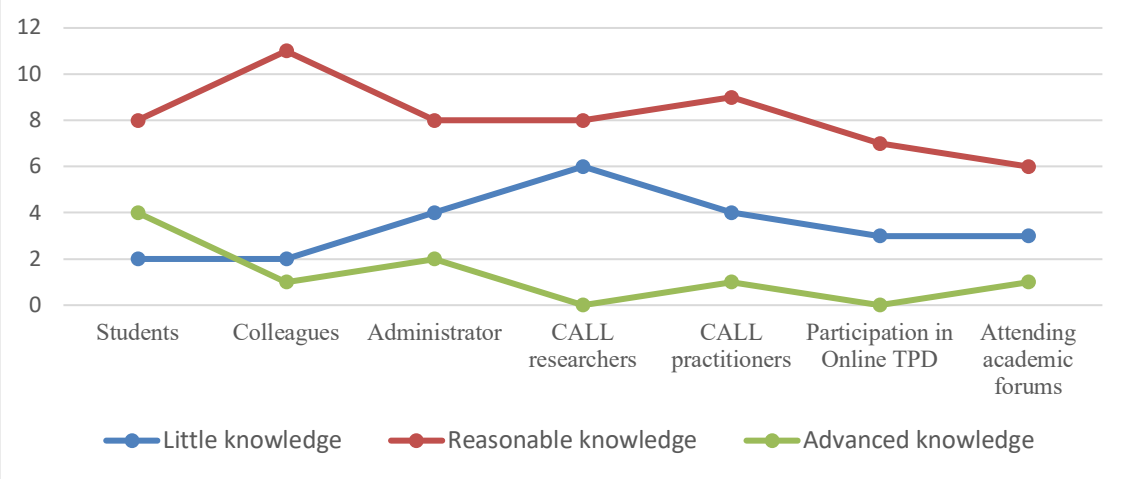
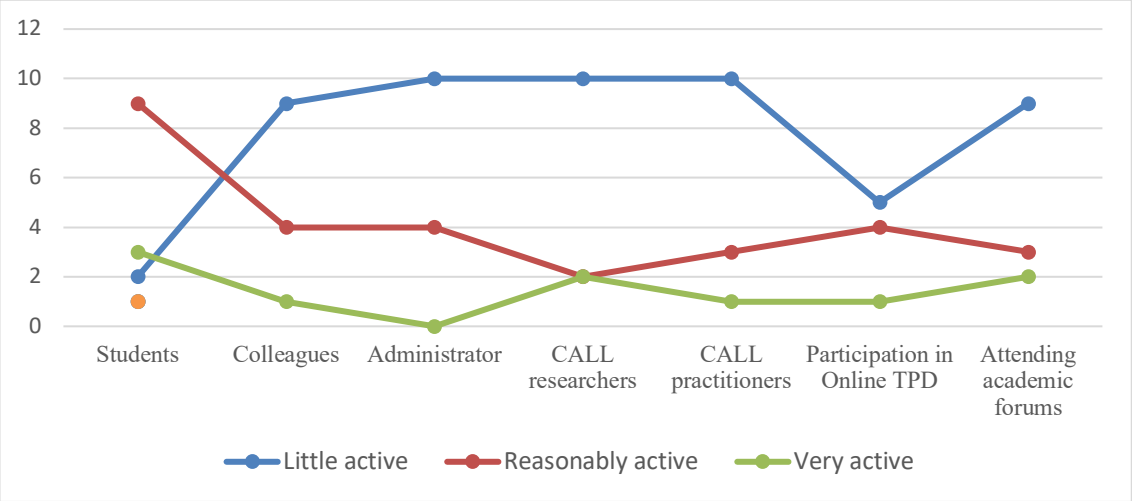


Figure 4
Teachers' perceived activeness in digital communication



The teachers perceived that they have proper knowledge (N=10 out of 14) for utilizing digital tools to build interaction with learners synchronously and asynchronously. However, they are notably less active in doing so. Secondly, the importance of teachers' communication with colleagues is perceived as mediocre, thus becoming little involved in doing online discussions with other teachers. Thirdly, communicating with CALL practitioners and researchers seems daunting for most teachers due to an inadequate understanding of how to do it. Interestingly, most teachers have reasonable knowledge of online teacher professional development and academic forums (e.g., virtual conferences, webinar symposiums, etc.). However, they still become inactive to join in the discussions.

The self-evaluation survey results were then validated in the FGI session to examine what causes them to be less engaged and less understand digital communication. FGI question: *Based on the self-evaluation survey you've just completed, most of you are little active in communicating with CALL researchers and practitioners as well as attending academic forums. What are your justifications regarding this matter?* Here are some excerpts generated from the FGI:

> Well, all we need is support from the institution; some communities of practice are not free of membership subscriptions (*e.g., TESOL association, CALICO, IATEFL and TEFLIN, etc.*). The experts in the field are there, so we need access support to those associations. Not all expenses are covered regarding the international conferences, making me think twice about participating in the meetings and other similar forums. (Gusti)

> I strongly agree with Gusti. I usually don't spend my money on conferences and any types of publications. The point is "I don't pay for disseminating my work in conferences." (Sinta)

> I still lack confidence in communicating with them synchronously, especially with the CALL experts within the webinars or symposiums. I am still an active listener (laughing). (Hijrah)

In this respect, all the teachers agree with the above extracts representing the extrinsic factors affecting their participation in the digital community. Therefore, They asserted that the role of institutions in encouraging the improvement of the quality of digital resources and digital literacy skills of teachers is pivotal, thus becoming essential in supporting the teachers to adapt to new digital technology quickly. For example, increasing the budget for professional development in digital technology is one of the short-term policies that can significantly impact their professional skills. However, interrogating the policy construction may vary in some contexts depending on the roadmap of each institution.

Collaboration in Digital Technology

This section presents the self-evaluation survey results about the teachers' understanding and activeness of collaborating in the digital world. For example, *are you digitally collaborating with other professionals, sharing experiences and CALL resources, managing collaborative activities, facilitating an online community of practice, and conducting team teaching?*.

Figure 5
Teachers perceived knowledge in digital collaboration

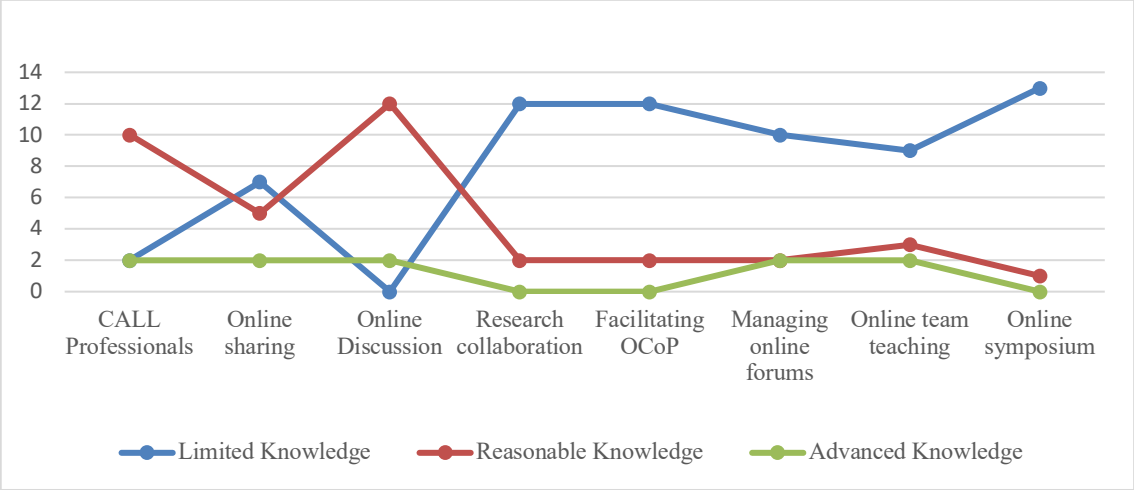
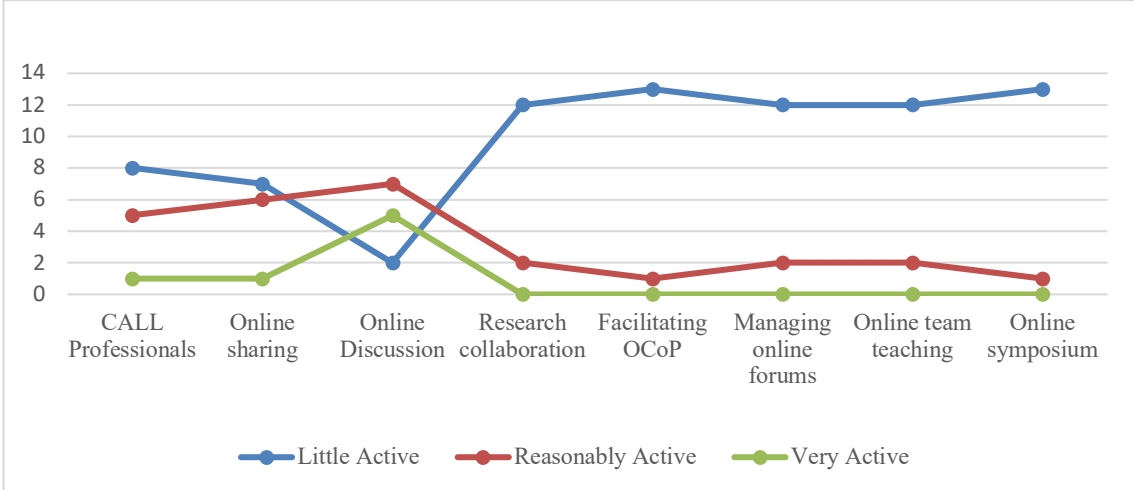


Figure 6
Teachers perceived activeness in digital collaboration



Overall, figures 5 and 6 show the low teacher participation in collaborating digitally, which is indicated by their lack of knowledge and activeness in most categories. Although they mostly have practical expertise in collaborating with CALL professionals (10 out of 14), they don't show dynamic behaviour in cooperating with others. The same thing is demonstrated by online discussions where they generally understand how to do it and have low participation in this activity. On the other hand, they mostly have limited knowledge and activeness in online research collaboration, facilitating an online community of practice, managing online forums, teaching online teams, and working together in online symposiums.

FGI question; Based on your responses in the survey, most of you have low participation in doing a digital collaboration. The following excerpts are the reasons hampering their involvement in doing a digital partnership. They are generated from the FGI transcriptions and have been mediated to English. *What are the reasons behind this phenomenon?*

> honestly, I don't participate actively in the digital community due to the lack of connections to other CALL professionals. Besides that, our work culture does not provide enough space for collaboration with other parties. For example, we don't get support for organizing international conferences and webinars, so we have limited access to relevant stakeholders to collaborate with. (Mus)

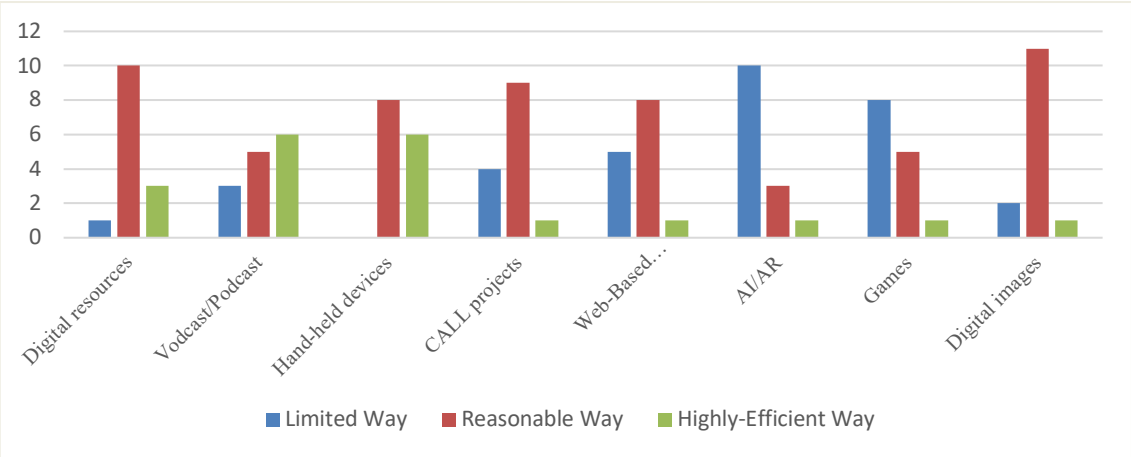
> hmm, I don't know; I agree with Ibu Mus; maybe because of the lack of financial support and limited access to CALL communities both nationally and internationally. As I know, to date, we have no national association of CALL, don't we?. (Ana)

All the teachers interviewed expressed the same opinion regarding the importance of increasing participation in CALL communities. Mus and Ana, for example, recounted that the institution must play its role to support and facilitate the teachers in attending and organizing national and international academic forums in the field. According to Mus, creating a space for online collaboration is essential to provide the teachers with a virtual environment for professional development. Still, Ana also asserted that one of the reasons is the absence of intellectual space in the area of CALL to develop teacher professional skills.

Reflection on Digital Technology

The section presents the teacher's perceived self-introspection ability on CALL technology. It reveals what they know, understand, and believe regarding their ability to do digital self-reflection and self-monitoring of some digital issues. For example, *what is your perceived understanding of digital copyright and the principles of using digital resources? What is your perceived account of digital ethics in using authentic vodcast/podcast?*

Figure 7
Teachers' perceived reflection on digital technology



Overall, the graph shows the teacher's perceived ability to reflect on their digital performance except for games and AI/AR technologies. Regarding the teacher's reflection on digital resources, most of them have the knowledge and ability to select, evaluate, and integrate online materials in their teaching. A similar trend is also found in vodcast/podcasts, handheld devices, CALL activities, web-based apps, and digital images.

FGI question; *what do you know about digital copyright in using online resources (e.g., video, audio, etc.) and digital images? And how do they relate to digital language teacher competency?*. The responses to this question are relatively similar; digital copyright deals with teachers' digital behaviour, ethics, action, and performance. They asserted that digital behaviour is how a teacher behaves digitally. Mus, for example, stressed the importance of a teacher's ability to coordinate copyright rules while employing original resources for research, academic, and other non-commercial reasons. Echoed by Sinta, digital ethics is a self-control skill to avoid violating the ownership of digital resources. In other words, the use of third-party materials is subject to obtain a legal permit from the source creator.

Discussion

The notion of digital language teacher competence is not merely associated with their ability to use all types of digital technology tools in their teaching context. Still, it is all about using a particular technology to bring benefits to students' learning experience. In response to the Covid-19 pandemic, preparing the language teachers to teach with digital technology is very timely, thus exposing a daunting task for teachers who have inadequate digital knowledge and literacy skills. According to Pianfetti (2001), improving teachers' digital literacy can accelerate their activeness in digital language teacher professional development. On the other hand, affordability and accessibility in online language learning have become central issues. It should be considered critically in selecting digital tools for teaching (Anas, 2019). However, the self-assessment survey results can also be used as a tool to investigate which area of competence should be given more attention for inclusion in continuing professional development (Lamers & Admiraal, 2018).

Exploring LLS, games, LMS, and AI/AR applications for teaching seemed daunting for some teachers (see Figures 1 and 2). This evidence informs that the teachers' have limited digital knowledge in exploring the software, thus impacting their activeness to utilize them in their teaching. Some factors might influence, for example, the teacher's interest in LLS, usability, accessibility, affordability, technological anxiety, learners' interest, and learning context. According to the interview, the teachers' reasoning and decision to explore or not to explore a particular software were not associated with whether the tools are sophisticated, high-ended, and newly developed. However, it was more likely to be the relevance of the means to the learning context. For example, using digital animation software, Dukut (2019) explored and designed a digital picture book for elementary students in introducing Indonesian popular food and vegetable. Her expertise can be associated with digital software, games, AI/AR applications, and handheld devices teaching English for young learners but not for engineering professionals. Language learning (digital) games might not be relevant to teaching ESP courses. However, AI and AR can be explored to support language learning delivery through digital simulation and the virtual environment, particularly in vocational classes. Therefore, teacher professional development will need to focus on AI/AR skills training.

Regarding the teachers' knowledge and activeness in digital communication (see Figures 3 and 4), it is necessary to facilitate them with ease of access to the global community in the field. Accelerating virtual participation in the online community of practice will help them get insightful experiences of what it means to be online collaborative learning (Roberts, 2004). According to Kirschner & Lai (2007), an online community of practice is a paradigm for professional development to support teachers, researchers, educators, and trainers to reflect on their practice. Some questions may arise: *How to improve the teachers' digital communication literacy skills? How should the institutions play their role in supporting teachers' professional learning?.* Admiraal et al.(2021) emphasize that the schools as professional learning communities should organize interventions to help the teachers' education, such as providing the teachers with professional development programs and building collaborative work and learning. They can also give and increase the budget for teacher professional development.

The teachers' lack of knowledge in online research collaboration is one of the essential issues to raise in this discussion section (see Figures 5 and 6). Therefore, improving the teacher's networking skills will help the teachers build relationships with other researchers in the field. As García-Martínez et al. (2020) pointed out, digital environments' setting-up is required to develop a collaborative networking culture. This culture offers numerous advantages to link and connect researchers around the globe to collaborate online in multi and interdisciplinary research (Mujumdar, 2015). It will enable teachers to advance their research experience by studying and investigating various research participants and contexts.

On the other hand, the participants in the study are primarily senior lecturers who have a limited capacity to explore new technology for their teaching. The evidence suggests that using user-friendly technology will help the seniors to familiarize themselves with the tools. Consequently, giving AI/AR training will make them frustrated and overwhelmed with the complexity of digital technology. Therefore, the self-assessment survey can identify the CALL area for targetted and suitable training for teachers in the future. A context-specific approach to developing language teacher digital competence for vocational education entails enhancing a particular CALL skill for

specific purposes. Bergmark (2020), for example, highlighted the importance of context-specific professional development when building a research-based education. She coined that it was essential to know the needs for professional teacher development where the learning is enacted.

The findings of this study, outlooked from self-determination theory, may be viewed through the lens of educational psychology (Ryan & Deci, 2020). Intrinsic motivation (e.g., interest, passion, enjoyment, and satisfaction) and extrinsic motivation (e.g., the software or game quality, learners' acceptance of them, cost efficiency, and effectiveness in assisting the students' learning) are two sides a coin. It strongly relates to the teachers' decision to continue working on their areas of interest. To this point, developing language teachers' digital competence can be accelerated by building strategies to increase their digital awareness and motivation. For instance, we cannot force the teachers to explore, design, develop, and use software or game in teaching if they do not have passion and interest. However, they can be encouraged and exposed to digital technologies to increase their awareness of technology-enhanced language learning, thus triggering their motivation to explore new technologies for their teaching purposes. According to figure 1, for example, the language teachers should not be encouraged to explore digital software, games, AI/AR applications for their professional development because they have little interest in those areas. Therefore, they should be encouraged to focus on the areas they are interested in, such as digital videos, social media, web-based applications, and MALL.

Furthermore, the teacher's digital motivation can also be associated with technophobia. It is closely related to technological anxiety that influences the teachers' thoughts and beliefs in developing digital literacy skills (Azarfam & Jabbari, 2012). The teachers' sense of technical fear is playing a dominant role in adopting new technology into their classrooms, such as being anxious to explore the features of a tool, breaking the device, messing up the tool's system, and violating the digital copyright. They usually feel comfortable with the current condition and seem reluctant to get out of their comfort zone. Therefore, moving the language teachers out of their comfort zone will help them improve their awareness of the importance of digital literacy skills development in response to the digitalization in language education (Lamers & Admiraal, 2018).

Conclusion

Effective teaching transforms knowledge from teachers to students using their existing pedagogical strategies with and without digital technologies. A digitally competent language teacher can integrate both pedagogical and technological aspects of learning effectively and meaningfully. Yet, they can show their abilities to use the digital tools they are knowledgeable and interested in more precisely. In conclusion, the digital language teacher's identity construction closely relates to their technological and pedagogical knowledge (Mishra & Koehler, 2006, 2008), belief, and self-determination (e.g., amotivation, intrinsic and extrinsic motivation) (Ryan & Deci, 2020). The implication of this study calls for the inclusion of digital motivation and awareness in CALL teacher education, *Continuing Professional Development,* and critical pedagogy in digital literacy development. Concerning the teachers' digital literacy skills development, long-term continuing professional development is also required to provide

them with adequate knowledge and skills to select, evaluate, modify, use, integrate, and reflect on digital technology in language teaching and education. More importantly, the institution should provide financial support and facilitate access to CALL communities nationally and globally. This study also recommends that the ECCR-based self-assessment should be initially undertaken before conducting a context-based continuing professional development. It will help CALL teacher educators determine the type of CALL course that suits their interests and learning context. Finally, we would like to make a disclaimer regarding the research context and condition of the participants. The study was conducted in a micro-reality context of vocational higher education and the number of language teachers were sixteen in total and only fourteen agreed to participate. Therefore, further research with a wider scope of participants will give more empirical evidence regarding the language teacher professional development.

Note

All the names are pseudonyms

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