PRE-SERVICE TEACHERS' EXPLORATION ON TECHNOLOGY-ENHANCED LANGUAGE LEARNING (TELL): OPPORTUNITIES AND CHALLENGES

Listiana Ikawati

IAIN Syekh Nurjati Cirebon, Indonesia

(listiana.ikawati@syekhnurjati.ac.id)

ABSTRACT

The availability of various technological devices to support language learning which are considered as TELL is worthy of being explored by teachers. This research is intended to understand the views of pre-service teachers about the opportunities and challenges in their exploration of TELL. A sequential explanatory mixed methods design was used to obtain data from 34 pre-service English teachers previously studying TELL course in the fifth semester. In the first phase of the study, the participants were involved in a survey to obtain their general perspectives on TELL exploration. A subsequent phase involved 5 participants joining semi-structured interviews to clarify the data from the first phase. The finding of the study indicates that the opportunities for TELL exploration for pre-service teachers are contributed by the benefits of TELL. In contrast, though undoubtedly necessary, TELL exploration was challenged by some factors, including its basic ICT requirement; its costly features and training; and teachers' lack of experience, competence, and resources to access technology. Considering the needs, opportunities, and challenges, language teacher education should boost more exposure to TELL for pre-service teachers through TELL exploration in formal training and encourage them to keep developing their professionalism through informal training and other relevant sources on TELL.

Key Words: pre-service teachers; TELL; exploration; language learning

ABSTRAK

Ketersediaan berbagai perangkat teknologi untuk mendukung pembelajaran Bahasa yang dianggap sebagai TELL layak untuk dieksplorasi oleh para guru. Penelitian ini dimaksudkan untuk memahami pandangan calon guru tentang peluang dan tantangan dalam eksplorasi mereka terhadap TELL. Desain sequential explanatory mixed methods digunakan untuk memperoleh data dari 34 calon guru yang sebelumnya mempelajari mata kuliah TELL di semester 5. Pada fase pertama penelitian, peserta dilibatkan dalam sebuah survey untuk memperoleh perskpektif umum mereka tentang eksplorasi TELL. Tahap selanjutnya melibatkan 5 peserta yang mengikuti wawancara semi terstruktur untuk memperjelas data pada tahap pertama. Hasil penelitian menunjukkan bahwa peluang explorasi TELL bagi calon guru berasal dari manfaat TELL. Sebaliknya, meskipun sangat diperlukan, eksplorasi TELL terhambat oleh beberapa faktor, termasuk persyaratan TIK dasar TELL, fitur dan pelatihan TELL yang mahal, dan kurangnya pengalaman, kompetensi, dan sumber daya guru untuk mengakses teknologi. Mempertimbangkan kebutuhan, peluang dan tantangan tersebut, pendidikan guru bahasa harus mendorong lebih banyak paparan TELL bagi calon guru melalui eksplorasi TELL dalam pelatihan formal dan mendorong mereka untuk terus mengembangkan profesionalisme melalui pelatihan informal dan sumber relevan lainnya tentang TELL.

Kata Kunci: calon guru, TELL; eksplorasi; pembelajaran bahasa

How to Cite: Ikawati, L.(2022). Pre-Service Teachers' Exploration on Technology-Enhanced Language Learning (TELL): Opportunities and Challenges. *IJEE (Indonesian Journal of English Education), 9*(2), 266-288-210. doi:10.15408/ijee.v9i2.27944

INTRODUCTION

The incorporation of technology in English language learning is unavoidable in today's world. The demand of 21st-century learning requires both teachers and learners to be literate, one of which is in ICT. It deals with the ability to implement technologies effectively, such as: 1) using technological tools to investigate, manage, assess and share information; 2) using digital technologies, communication tools, and social networks properly to obtain information, and 3) implementing basic knowledge on the ethical and legal issues of information technology (The Partnership for 21st Century learning, 2009). Hartshorne & Ajjan (2009) add that integrating technology into the learning process enables students to do a collaboration, interaction, communication, co-creation, and knowledge sharing. Besides that, by using the technologies, students will become active information receivers through the process of knowledge and experience exchanges making it possible for them to recreate new insights. Thus, the teaching and learning process which incorporates technologies allows the teaching and learning process to be student-centered through interaction and communication through the technologies. It will also draw away the previous conventional learning which was mostly teacher-centered.

Since the pandemic era, the role of technology in the teaching and learning process is getting crucial. The pandemic has shifted the learning mode from face-to-face to online (Situmorang et al., 2020). In online learning, the teaching and learning process can be conducted either synchronously or asynchronously. Another possible choice is the combination of both learning modes, which is often regarded as blended learning. However, since it happened so rapidly and unexpectedly, the pandemic has forced teachers and students to make use of the technology abruptly and without any or with less preparation.

As a result, many teachers are not ready to implement the technology in the classrooms and have no idea on how to manage their online classrooms. The majority of teachers are not well-prepared to integrate technology into their lessons (Bracewell, et al., 2007). Some teachers found it difficult to transform their materials which were supposed to be delivered in face-to-face learning to online.

Some obstacles faced by teachers in technology integration include teachers' lack of software, sufficient training, learning equipment tools & resources, skilled personnel, confidence, and

knowledge; teachers' reluctance to new technology; and limited time (Habibu et al., 2012). Thus, nowadays teachers not only need to master the content knowledge but they also need to be tech-savvy in order to get greater access to content knowledge. Therefore, educators' role in providing sufficient knowledge on how to integrate technology into the lessons is highly required.

Higher education especially the one administering teacher education program is one of the institutions which is in charge of producing qualified and versatile teachers mastering 21st-century knowledge, expertise, and skills. In other words, the purpose of a teacher education program in higher education is to educate and prepare pre-service teachers to be qualified teachers in the future. Rahimi (2015) states that pre-service teachers are those students joining the education study program before their teaching. In their study program, these students are prepared with some teaching competencies to support their future careers. Pre-service teachers must obtain appropriate knowledge on the opportunities and challenges in integrating technology into the lessons to be able to competently teach students dominated by digital natives (Young et al., 2014). Additionally, pre-service teachers need to have positive attitudes toward the

incorporation of technology into their classrooms to effectively implement it. Providing teacher candidates with knowledge on the feasibility and challenges in incorporating technology into the teaching and learning process will result in its fruitful application (Myers & Halpin, 2002; Yushau, 2006). Today, technology integration by pre-service teachers is highly possible not because they will later teach the students who are mostly digital natives but because they are themselves, digital natives.

The term digital natives refer to the young generations that were born along with the emergence of technology (Prensky, 2001). These generations are known for being familiar and confident to use technology because they have spent most of their days using technological tools to socialize and entertain themselves (Gallardo-Echenique et al., 2015; Prensky, 2001). Digital natives are also regarded as Generation Z comprising those people born between 1995 and characterized by quick decision-making and very interconnected (Cilliers, 2017; Consistency.uk, 2015). On the other hand, those people born before the emergence of technology and later need to adapt and start using the technology are referred to as digital immigrants (Creighton, 2018; Prensky, 2001).

Although there is no guarantee that pre-service teachers who belong to digital natives have good technological skills and possess good understanding on technology integration in the classroom, their everyday use of technology and their positive attitudes toward it may make it easier for them to do it. Hence, providing them with the appropriate instruction to support their future career is a must. This instruction can be realized in teacher development that is regarded as an effort to assist teachers in developing their understanding, abilities, and approaches to teach and to enhance their self-confidence and expertise (Son, 2018). Teachers' development can be done through formal and informal ways based on their own current and future aims (Richards & Farrell, 2005; Wallace, 1991).

Concerning language learning, the use of technology-enhanced language learning (TELL) is viewed to contribute effectively to the lessons. The emergence of TELL dated back to the 1960s when a more general term, CALL standing for Computer-Assisted Language Learning (CALL), developed. CALL deals with the usage of various kinds of computers and digital tools to assist language classrooms (Son, 2018). Warschauer (1997) perceives TELL as 'integrative CALL' which is the computer's 'third phase of use' second

language teaching for its integration representations of varied language components. Radhakrishnan (2017) states that "technology-enhanced language learning uses computer technology, including hardware, software, and the internet to enhance the teaching and learning of languages." Bacon & Finneman (1990) claim that the use of technology can effectively expose students to authentic materials for their learning. It can be concluded that TELL is an evolution of CALL specifying the use of multimedia and the internet and exposing students to authentic materials which are useful for their language learning.

There are some advantages and disadvantages of technologies used in language learning. The advantages of TELL include: (1) it is flexible and can accommodate students' various learning styles; (2) it can be combined with textbooks for students' deeper understanding; (3) it brings a student-centered atmosphere into the classrooms; (4) it encourages autonomous learning; (5) it enhances students' participation, motivates students to learn, and develops students' positive attitudes towards learning; (6) it decreases students' learning anxiety; (7) it improves students' communicative skills; (8) it allows students to access the target culture; (9) it enhances students'

language skills and components; and (10) it exposes students to authentic and comprehensible materials (Ghanizadeh et al., 2015; Radhakrishnan, 2017).

Despite the advantages presented above, technology-enhanced language learning also shares some limitations. They include: (1) some of its features are paid and they are costly; (2) training on technology is costly; (3) the media used to assess the technology are sometimes expensive; (4) it requires both teachers and students to master basic technological knowledge; (5) there is a potential that errors may occur; (6) there are some access problems outside the school; (7) students may become too dependent on technology; (8) sometimes students will concern more on the features than the content of the technology; and (9) it is difficult to integrate technology into the school curriculum (Radhakrishnan, 2017; Yeşilel, 2016).

Furthermore, Radhakrishnan (2017) classified six functions of technology to create favourable learning. First, technology enables students to access and study learning materials. Second, technology encourages students to learn about research. Third, technology teaches students how to communicate and collaborate effectively. Fourth, technology teaches students to learn through construction. Fifth, technology is used to assess students' learning progress and performance. Sixth, technology is employed to support students' digital and multimedia literacy.

Some previous research on pre-service teachers, TELL and technology integration have been conducted by some scholars. First, a study conducted by DiBella et al. (2015) investigated the use of technology and web 2.0 tools to improve pre-service teachers' readiness to integrate technology with cross-curricular adaptations. The results indicate that valuable workshops are effective to apply the tools for pre-service teachers' future teaching and they must apply the technology in their future classrooms. Second, Corkett & Benevides (2015) investigated pre-service teachers' insights and self-confidence on technology and multiliteracy within the inclusive classroom. The results of the study show that new teachers feel more confident to integrate technology into their classrooms after conducting research and developing a lesson plan about using the applications in an inclusive classroom.

Third, research conducted by Yeşilel (2016) examined the benefits of using several web-based technologies to enhance young learners' language

skills. The results of the study suggest that technology is vital in education and teachers have to keep pace with the development of content knowledge and technological tools. The last research was done by Situmorang et al. (2020) who studied students' voices regarding English teachers' readiness in technology-enhanced language learning during the pandemic. The results of the study indicate that English teachers possess good abilities, particularly to choose the appropriate learning tools for teaching, to manage the online classroom, and to conduct assessments for online learning.

This study differs from the previous studies in many ways. First, the study by Dibella et al. (2015) focuses on teacher candidates' readiness and intentions on the use of technology, particularly the web 2.0 tools, while this study is not only limited to the use of web 2.0 tools. Second, Corkett & Benevides (2015) study the teacher candidates' insights and self-confidence on technology and multiliteracy within the inclusive classroom. In contrast, this study does not only focus on self-confidence but also enables teacher candidates' views on the opportunities and challenges of TELL. Third, Yeşilel (2016) studied the advantages of web-based technologies to improve young learners' language skills. On the other hand, this study does not only deal

with the opportunities of TELL but also its challenges and the participants are pre-service teachers. Finally, unlike Situmorang et al. (2020) studying students' perspectives on English teachers' readiness in TELL during the pandemic, this study attempts to reveal the pre-service teachers' voices on TELL after their own exploration.

The pivot of technological tools in language learning especially in this post-pandemic time and some findings of the previous relevant studies on pre-service teachers' technology integration raise the urgency of pre-service teachers' technology exploration. Thus, this study attempted to examine their attitudes on their exploration on technologies to figure out some opportunities and challenges to incorporate technology in their future teaching.

METHOD

Research design

The aim of the study was to figure out pre-service teachers' views on the opportunities and challenges in their exploration on TELL. This study employed a sequential explanatory mixed methods design. In a sequential explanatory methods design, the researcher carries out the research in two phases, namely the quantitative

phase and the qualitative phase (Creswell, 2013).

Research site and participants

The participants in this research were the fifth-semester pre-service teachers enrolled in the English language Department of higher education in Indonesia. The total population consisted of 64 students. They took an elective course, entitled Technology-Enhanced Language Learning (TELL). In this course, the students were involved in inquiry-based learning. They were introduced to the basic knowledge on CALL and TELL and learned how TELL supported language learning. The lecturer also introduced students to foundational theories of TELL and some technologies supporting language learning, such as Flippity; Learningapps.org; Padlet; Coggle; Speech Analyzer; Notevibes, Artificial Intelligence; and Nearpod and assigned them to complete tasks requiring them to explore the technologies and their features. In the end of the class, the lecturer assigned the students to fill out a reflection form. It reflected students' feelings and difficulties in using the technology and their biggest takeaway from the technology explored in the lesson.

Data collection and analysis

The data in this study were collected in two main phases, namely the quantitative phase and the qualitative phase. The first phase, the quantitative phase, aimed to figure out the pre-service teachers' general attitudes on the opportunities and challenges on TELL exploration. The data were collected by a means of a survey. The survey consisted of 63 items which could be classified into 6 sections. The sections included students' perceptions on pre-service teachers as digital natives, pre-service teachers' digital literacy, pre-service teachers' prior knowledge on TELL, the need for TELL integration in the classroom, and the benefits of TELL, and the challenges in applying TELL. The survey comprised 3 close-ended items requiring students to give the responses by checking the boxes and 60 four-point Likert-scale consisting of 60 statements ranging from Strongly Disagree to Strongly Agree). The close-ended items were in the first and second sections of the questionnaire which were about pre-service teachers as digital natives and their prior knowledge on TELL respectively. The survey created in Google Form was distributed to the total population of 64 students chosen through self-selected sampling. In self-selected sampling, the researcher publicized the research

information and the survey in certain media and the participants voluntarily participate in the research (Saunders, et al., 2012). In this study, the researcher shared the research information and the survey link to TELL class WhatsApp groups but there were only 34 students voluntarily clicked the link and completed the survey. The participants consisted of 29 (85.29%) female students and 5 (14.71) male students.

The data found in the quantitative phase were explored further in the second phase, the qualitative phase. In the qualitative phase, the researcher conducted semi-structured interviews. Based on the survey responses, a purposive sampling method was used to select five participants to involve in the interviews which were carried out at the Zoom meeting. The interviews were conducted after the pre-service teachers finished their student teaching. Another source of qualitative data was obtained from documents in the form of students' reflections completed in every class meeting on Google Classroom. The qualitative phase following the quantitative phase was carried out to understand and elaborate on the results from the quantitative phase. In addition, it is also done to improve the validity and reliability of the quantitative data previously obtained.

The data collected in the quantitative phase were analyzed using descriptive statistics. SPSS Version 26 was used to test the statistical significance of the questionnaire items with an alpha level of 0.05. The reliability of 60 questionnaire items results in the alpha coefficient of 0.944. This suggests that the items have high internal consistency. It implies that the responses were reliable. The case processing summary and reliability statistics are presented in the following table 1 and 2.

Table 1. Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	34	100.0
	Excluded[a]	0	.0
	Total	34	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2. Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.944	60

The data were later tabulated and the percentages were calculated to determine pre-service teachers' perspectives on the opportunities and challenges on TELL exploration. In addition, interviews and documents were later used for verifying the reliability of the survey results and

exploring more detailed perspectives of the participants. The qualitative data were analyzed using the four steps of the interactive model, including data collection, display, condensation and conclusion (Miles & Huberman, 1994). The results of qualitative data analysis supported the descriptive statistical analysis done in the first phase.

The trustworthiness of this research was maintained by using triangulation. Denzin (as cited in Nzabonimpa and Prozesky, 2021) states that triangulation can be done by combining methodologies in studying a similar case. Since this study is a mixed method study, the triangulation was done by combining the data obtained through quantitative and qualitative methods.

FINDINGS AND DISCUSSION

Findings

This part will report the findings of the research according to two phases of the research. The first is the result of the quantitative data analysis taken from the survey. The second is the result of the qualitative data analysis taken from the interviews and documents.

Reporting the Quantitative Data Analysis

The study aimed to investigate the opportunities and challenges in pre-service teachers' exploration and

integration of TELL. This research mainly concerns with six aspects in TELL exploration which include: (1) pre-service teachers as digital natives, (2) pre-service teachers' digital literacy, (3) pre-service teachers' prior knowledge on TELL, (4) the need for TELL exploration, (5) benefits of TELL and (6) challenges in applying TELL. Data collected in the first phase of the research focused to get pre-service teachers' views on those aspects.

Pre-service Teachers as Digital Natives

Table 3. Pre-Service Teachers as Digital Natives

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)	
3	I have social media account(s).	0 (0%)	0 (0%)	4 (11.8%)	40 (88.2%)	3.88
4	I access my social media every day.	0 (0%)	1 (2.9%)	10 (29.4%)	23 (67.6)	3.65
5	I access the internet every day.	0 (0%)	0 (0%)	8 (23.5%)	26 (76.5%)	3.76
6	I read news from social media and websites.	0 (0%)	1 (2.9%)	16 (47.1%)	17 (50%)	3.47
7	I watch YouTube every day.	1 (2.9%)	8 (23.5%)	14 (41.2%)	11 (32.4%)	3.03
8	I listen to songs and read the lyrics online.	0 (0%)	7 (20.6%)	11 (32.4%)	16 (47.1%)	3.26
9	I improve my English skills by assessing some websites.	0 (0%)	2 (5.9%)	13 (38.2%)	19 (55.9%)	3.50
10	I improve my English skills by using some digital/ online apps.	0 (0%)	1 (2.9%)	16 (47.1%)	17 (50%)	3.47
11	I use digital/ online dictionaries to find the meanings of difficult words.	0 (0%)	0 (0%)	8 (23.5%)	26 (76.5%)	3.76
12	I watch movies online.	0 (0%)	6 (17.6%)	12 (35.3%)	16 (47.1%)	3.29
13	I read online journals and e-books.	0 (0%)	4 (11.8%)	10 (29.4%)	20 (58.8%)	3.47
14	I play online games/ video games every day.	16 (47.1%)	10 (29.4%)	4 (11.8%)	4 (11.8%)	1.88

Table 3 illustrates how familiar the participants are with the technology as digital natives. The table reveals that the participants were familiar with technology and got used to it in their everyday life starting from the use of

social media, the internet, video streaming services, music streaming services, and other digital websites and tools for learning English. All of the participants agreed that they owned social media and most of them access their social media every day. This contributed to the highest mean for the use of technology (3.88%). Most of the participants also agreed that they accessed the internet every day shown by the mean score of 3.76%. They accessed the internet to read news, watch YouTube, listen to songs and read lyrics, watch movies, read e-books and journals and learn English. In learning English, the participants mostly used the internet to access digital/ online dictionaries to find the meanings of difficult words. The lowest mean was in the use of online games/ video games (1.88%).

Pre-Service Teachers' Digital Literacy

Table 4 describes the pre-service teachers' digital literacy. It can be implied that most of the participants mastered basic ICT skills. Most of them stated they strongly agreed with the statements related to the use of word processing tools, online file-sharing services, Learning Management System (LMS), search engines, and the ability to convert one type of Ms. Office file type to another. Most of the participants

were also familiar with the use of videoconferencing apps such as Zoom and Google meet.

Table 4. Pre-Service Teachers' Digital Literacy

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagreen (%)	Disagreen (%)	Agree n (%)	Strongly Agree n (%)	
15	Before joining the TELL course, I could create a YouTube video and post it.	3 (8.8%)	14 (41.2%)	8 (23.5%)	9 (26.5%)	2.68
16	Before joining the TELL course, I could use the LMS (Learning Management System), e.g. GCR, Moodle.	0 (0%)	3 (8.8%)	12 (35.8%)	19 (55.9%)	3.47
17	Before joining the TELL course, I could use videoconferencing apps (Zoom, G meet).	0 (0%)	0 (0%)	5 (14.7%)	29 (85.3%)	3.85
18	Before joining the TELL course, I could choose the appropriate materials for the teaching and learning process.	0 (0%)	2 (5.9%)	19 (55.9)	13 (38.2%)	3.32
19	Before joining the TELL course, I could create engaging classroom activities by using technology.	0 (0%)	4 (11.8%)	17 (50%)	13 (38.2%)	3.26
20	Before joining the TELL course, I could create a mind map with an online app.	5 (14.7%)	11 (32.4%)	13 (38.2%)	5 (14.7%)	2.53
21	Before joining the TELL course, I could use an app to convert text to speech.	5 (14.7%)	11 (32.4%)	13 (38.2%)	5 (14.7%)	2.53
22	Before joining the TELL course, I could use Artificial Intelligence to support language learning.	1 (2.9%)	6 (17.6%)	13 (38.2%)	14 (41.2%)	3.18
23	Before joining the TELL course, I could use certain apps to assess my learning progress.	0 (0%)	6 (17.6%)	15 (44.1%)	13 (38.2%)	3.21
24	Before joining the TELL course, I could use several search engines (google, yahoo) to improve my language learning.	0 (0%)	0 (0%)	15 (44.1%)	19 (55.9%)	3.56
25	Before joining the TELL course, I could store,	0 (0%)	1 (2.9%)	11 (32.4%)	22 (64.7%)	3.62

Besides that, most of the participants agreed that as pre-service teachers they could choose the appropriate ELT materials, create engaging classroom activities by using technology, use certain apps to assess the learning progress, and use AI to support language learning but there were still few of them who could not do those abilities. The lowest means scores were obtained in the statements related

to the ability to use gamification tools (2.97), create a YouTube video and post it (2.68), create a mind map with an online app (2.53), and covert text-to-speech online (2.53).

Pre-Service Teachers' Prior Knowledge on TELL

Table 5. Pre-Service Teachers' Prior Knowledge on TELL

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)	
29	Before joining the TELL course, I already knew that technology played an important role in language learning.	0 (0%)	1 (2.9%)	11 (32.4%)	22 (64.7%)	3.62
30	Before joining the TELL course, I already knew that technology integration in the classrooms was a must.	0 (0%)	4 (11.8%)	16 (47.1%)	14 (41.2%)	3.29
31	Before joining the TELL course, I knew that CALL referred to the use of various kinds of computers and digital tools to assist language classrooms.	0 (0%)	7 (20.6%)	15 (44.1%)	12 (35.3)	3.15
32	Before joining the TELL course, I knew that TELL refers to the implementation of computer technology which includes hardware, software, and the internet to improve students' language learning.	0 (0%)	8 (23.5%)	14 (41.2%)	12 (35.3%)	3.12
33	Before joining the TELL course, I knew that CALL and TELL were different.	2 (5.9%)	2 (38.2%)	11 (32.4)	8 (23.5%)	2.74

Table 5 indicates the pre-service teachers' prior knowledge on TELL before they joined the TELL course. It includes the need for TELL integration and the distinction between CALL and TELL. The result shows that most of the participants strongly agreed that technology played an important role in language learning and most of them knew that integrating technology in the classroom was a must. Most of the participants were also familiar with the terms TELL and CALL, yet few of them still could not define them.

The Need for Pre-service Teachers' Exploration on TELL

Table 6. The Need for Pre-service Teachers' Exploration on TELL

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)	
35	The 21st Century Learning Framework demands teachers to possess information, media, and technology skills.	0 (0%)	0 (0%)	10 (29.4%)	24 (70.6%)	3.71
36	Technology incorporation in the classrooms can enhance teachers' learning and innovation skills (creativity & innovation, critical thinking & problem solving, communication and collaboration)	0 (0%)	0 (0%)	6 (17.6%)	28 (82.4%)	3.82
37	Professional development is needed for teachers and pre-service teachers.	0 (0%)	0 (0%)	7 (20.6%)	27 (79.4%)	3.79
38	Teachers' professional development should cover technology incorporation in the teaching and learning process.	0 (0%)	0 (0%)	6 (17.6%)	28 (82.4%)	3.82
39	Teachers need to incorporate TELL in the classroom to boost students' learning motivation.	0 (0%)	1 (2.9%)	7 (20.6%)	26 (76.5)	3.74
40	Some teachers feel not confident to incorporate technology into their classroom.	0 (0%)	2 (4%)	13 (38.2%)	17 (50%)	3.38
41	To develop teachers' confidence in incorporating technology in the classroom, they need to have experience in using the technology.	0 (0%)	0 (0%)	8 (23.5%)	26 (76.5%)	3.76
42	Pre-service teachers need to understand the values and challenges in technology	0 (0%)	0 (0%)	9 (26.5%)	25 (73.5%)	3.74

Table 6 explains the need for pre-service teachers' exploration on TELL. The participants were aware that TELL belongs to the demands of 21st-century learning and TELL implementation in the classroom can help enhance their 4Cs including creativity & innovation, critical thinking & problem solving, communication and collaboration). The

participants also mostly agreed that teacher professional development which included the development of skills in TELL was needed. In addition, related to teachers' confidence in implanting TELL in their classroom, most of the participants (50%) strongly agreed that it becomes a barrier in TELL integration, and to solve that problem teachers need to have experience in using the technology (76.5%). Besides that, the results of the survey also reveal that most of the participants strongly agreed that teachers should master some basic required abilities in integrating TELL into the classroom which included the understanding on the values and challenges in technology incorporation and the ability to choose engaging gamification apps suited to students' proficiency level, to select the appropriate TELL contents, to implement TELL to help manage the online classroom and to solve the technical issues in applying TELL.

The Benefits of TELL

Table 7 presents some statements regarding the benefits of incorporating TELL in language learning. Most of the participants gave positive responses ("agree" and "strongly agree) to eight statements provided. Four statements obtaining the same highest mean scores (3.71) include TELL flexibility to accommodate students' different

learning styles, the combination of TELL and textbooks to deepen students' understanding, TELL potential to enhance students' participation, motivation, and positive attitudes towards learning, and TELL potential to improve students' communicative skills.

Table 7. The Benefits of TELL

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)	
48	TELL is flexible and can accommodate students' different learning styles.	0 (0%)	0 (0%)	10 (29.4%)	24 (70.6%)	3.71
49	TELL can be combined with textbooks to deepen students' understanding.	0 (0%)	0 (0%)	10 (29.4)	24 (70.6%)	3.71
50	TELL can encourage autonomous learning.	0 (0%)	0 (0%)	12 (35.3%)	22 (64.7%)	3.65
51	TELL can enhance students' participation, motivate students to learn, and develop students' positive attitudes towards learning.	0 (0%)	0 (0%)	10 (29.4%)	24 (70.6%)	3.71
52	TELL can decrease students' learning anxiety.	0 (0%)	2 (5.9%)	11 (32.4%)	21 (61.8%)	3.56
53	TELL can improve students' communicative skills.	0 (0%)	0 (0%)	10 (29.4%)	24 (70.6%)	3.71
54	TELL allows students to access the target culture.	0 (0%)	1 (2.9%)	9 (26.5%)	24 (70.6%)	3.68
55	TELL exposes students to authentic and comprehensible learning materials.	0 (0%)	0 (0%)	12 (35.3%)	22 (64.7%)	3.65

The Challenges in TELL Incorporation

Table 8 shows some statements about the challenges in incorporating TELL into the classroom. Most of the participants (70.6%) strongly agreed that TELL incorporation required both teachers' and students' mastery of basic technological knowledge. In contrast, few participants also showed their disagreement with the statements regarding paid and costly features of

TELL, TELL costly training, expensive media to access the technology, students' shifting concern in using the technology, and difficulty in incorporating technology into the school curriculum.

Table 8. The Challenges in TELL Incorporation

Item No.	Aspects	Responses				Mean (%)
		Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)	
56	Some of the TELL features are paid and they are costly.	0 (0%)	2 (2.9%)	13 (38.2%)	20 (58.8%)	3.56
57	Training on TELL is costly.	1 (2.9%)	5 (14.7%)	19 (55.9%)	9 (26.5%)	3.06
58	Media used to assess the technology are sometimes expensive.	1 (2.9%)	4 (11.8%)	13 (38.2%)	16 (47.1%)	2.29
59	TELL requires both teachers and students to master basic technological knowledge.	0 (0%)	0 (0%)	10 (29.4%)	24 (70.6%)	3.71
60	There is a potential that errors may occur in TELL.	0 (0%)	0 (0%)	20 (58.8%)	14 (41.2%)	3.41
61	Students may become too dependent on TELL.	0 (0%)	2 (5.9%)	18 (52.9%)	14 (41.2%)	3.35
62	Sometimes students will concern more on the features than the content of the technology.	0 (0%)	1 (2.9%)	14 (41.2%)	19 (55.9%)	3.53
63	It is difficult to incorporate technology into the school curriculum.	0 (0%)	3 (8.8%)	18 (52.9%)	13 (38.2%)	3.29

Reporting the Qualitative Data Analysis

After the data were obtained from the survey, the researcher continued with the second phase of the research concerning more investigation on pre-service teachers' exploration on TELL based on participants' responses in the survey through the data from the semi-structured interviews and documents. The data from interviews were obtained from five participants.

Pre-Service Teachers' excessive use of smartphones

The interviews asked pre-service teachers about the total hours they spent per day using their smartphones and the utilization of their smartphones. The result can be seen as table 9.

Table 9. The Interview Result on Pre-Service Teachers' Excessive Use of Smartphones

Points	Students' responses
Lengthy use of smartphones	Students used smartphones longer than they did before the pandemic ranging from 6-more than 10 hours a day.
Utilization	1. 1. Students used their phones mostly for pleasure, e.g. accessing social media, news.
	2. 2. Students used their smartphones for learning, e.g. joining online lectures, doing assignments.

In the interviews, all of the participants claimed that they used their smartphones longer than before. Previously, they spent 3 to 4 hours using their smartphones, but after the pandemic they used smartphones for around 6-10 hours a day or even more than 10 hours a day. They used their smartphones for pleasure and learning. For pleasure, they accessed their social media and read news. They also used their smartphones to support their online learning by joining teleconferences, browsing journals, and completing their assignments. They

also emphasized that they spent more time using their smartphones for pleasure rather than for learning.

Pre-Service Teachers' Prior Knowledge on TELL

The interview question asked deeper about the participants' prior knowledge on TELL before they joined the TELL course. Here are students' responses.

Table 10. The Interview Result on Pre-Service Teachers' Prior Knowledge on TELL

Points	Students' responses
Familiarity with TELL	Before joining the course, students were familiar with few technological applications for language learning.
Application	Students had not applied TELL applications before the course.

The results of the interview reveal that before studying TELL course they were familiar with few of technological applications for language learning. However, they had not had any hands-on experiences on the use of the applications.

Pre-Service Teachers' Need to Explore TELL

The interview asked students to elaborate further on their opinions on the pre-service teachers' need to explore TELL. Here are students' responses.

Table 11. The Interview Result on Pre-Service Teachers' Need to Explore TELL

Points	Students' responses
Need for TELL exploration	Students claimed that before teaching they needed to explore TELL.
Implication for future teaching	Students' experience in TELL will prepare them to apply TELL in their future teaching.

Students stated that before taking the TELL course they had experiences in joining seminars about TELL, but they had not applied them yet. After taking the TELL course and learning how to use some applications for language learning, they found it interesting and useful for teaching. Because of that, they advised that English teacher candidates should be given opportunities to explore TELL in order to prepare for their future teaching.

Benefits/ Opportunities of TELL

The interview question asked deeper about the participants' views on the benefits/ opportunities of TELL. Students' responses are presented in this table 12.

Table 12. The Interview Result on Benefits/ Opportunities of TELL

Benefits/ Opportunities	Students' responses
Attractiveness	Students argued that they learned some interesting applications in the TELL course.
Usefulness	Students considered that the applications they learnt in the TELL course were useful for teaching.
No charges	Students stated that some of the applications learnt in the TELL course were good and free.
Effectiveness	After learning the TELL course, students implemented some applications in their teaching and they were effective.
Practicality	Students mentioned that some applications they learnt in TELL were practical.

The results of the interview above show that TELL has some benefits. Its attractiveness, usefulness, no charges, effectiveness, and practicality encourage pre-service teachers to apply them in their future teaching.

The benefits of TELL were also mentioned by the students in the reflection forms that they had to complete after the lesson. They shared their biggest takeaway from some lessons in the TELL course as follows.

Table 13. Pre-service Teachers Reflection on Benefits/ Opportunities of TELL

TELL applications	Students' reflections
Flippity	A great, innovative, and awesome assistance for teachers to enhance the learning process
Learningapps.org	A cool, rich, complete, attractive application for all levels of language learners
Padlet	An interesting, cool, creative, and easy application
Elsa Speak	An easy and effective application with speech recognition to improve students' speaking skills

Students' reflections above supported the results of interviews on pre-service teachers' positive impressions on TELL. They found some of the applications innovative, creative, attractive, complete, helpful, and suitable for language learners.

Challenges in TELL Incorporation

The interview asked participants to give their views on the challenges on

TELL incorporation. The following table illustrated students' responses.

Table 14 The Interview Result & Pre-Service Teachers' Reflection on their Challenges in TELL Incorporation

Challenges	Students' reflections
Teacher's lack of confidence	1. Some technologies were too complicated for teachers and they preferred easier ones. 2. Teachers lacked technological competence
Bad internet connection	Pre-service teachers experienced many technical problems due to bad internet connection.
Unfamiliarity with the applications	Pre-service teachers found some applications were new for them and they were not familiar yet.

From the interviews and reflection forms, it is found that the main challenges in incorporating TELL include teachers' lack of confidence, bad internet connection, and unfamiliarity with the applications.

Through the interview, the researcher also confirmed some of the students who disagreed with a few of the statements in the survey related to the costly TELL features, TELL training, TELL media, and students' tendency to become too dependent on TELL. They disagreed with the statement that TELL features and training were costly because there were some free TELL features and seminars or workshops in TELL available. Another student argued that students would not become too dependent on TELL because some of them were still unfamiliar with the technology.

Discussion

In this part, the findings of the study presented in the previous part will be elaborated. They will also be connected to the relevant literature.

It is reported from the survey and interview results that as generation Z who grows up along with the development of technology, the participants are familiar with and accustomed to using the technology in their daily activities. This is in line with Gallardo-Echenique et al. (2015) and Prensky (2001) who mention that generation Z is well-acquainted and confident to use technology since they spend most of their days using it to socialize and entertain themselves. This research also reveals that the participants' excessive use of their smartphones is contributed by online learning. The shifting of the learning mode from offline to online during the pandemic has also moved most of their activities to the virtual world. In line with this, Bashir, et al (2021) point out that the pandemic has thoroughly

challenged and disturbed the university sector, including the learning mode and learning evaluation which have to be conducted virtually. That is why students are getting keener on accessing technology using their smartphones. Statista reported that students' time to access applications during online learning has raised and contributed to an 8.5% rise in learning time from mobile phones in 2021, although they have still allocated more time using their smartphones for pleasure (Adamo Software, 2021).

The pre-service teachers' familiarity with technology as generation Z has also raised a question about their digital literacy and their prior knowledge of TELL before joining the course. Related to the pre-service teachers' digital literacy, the pre-service teachers mostly mastered ICT basic skills and basic technological skills for teaching, yet some of them still did not know some particular apps which could be used for ELT. In addition, the pre-service teachers already knew the importance of integrating TELL in the classroom and were familiar with TELL and CALL, but they still did not know how TELL differed from CALL. Thus, the pre-service teachers' familiarity with the technology does not guarantee their advancement in digital literacy and knowledge on TELL. In line with this, Hourigan and Murray (2010) argue

that though second language learners were born as digital natives in countries with good technology development they do not automatically have expertise in using technology for learning.

Regarding the need for pre-service teachers' exploration on TELL, pre-service teachers were aware of the importance of TELL integration and they needed professional development enabling them to explore TELL. This can build or even enhance their abilities in TELL which is useful to prepare the teachers before they can incorporate TELL in their classrooms. Similarly, Son (2014) suggests that CALL training for teachers enables them to gain skills needed to use the teaching materials and enhance their technological skills through the exploration of the relevant theories and practices on CALL and improve their roles in the teaching and learning process. Egbert, et al. (2002) also conducted a study on the impact of technology for language learning coursework on the use of computers in the classroom indicating that teachers who apply activities using technology in language learning are those who previously had experience in the technology. Thus, it is clear that the need for teacher education to grow pre-service teachers' technological competencies is undoubtedly needed. To be able to incorporate technology

into their classrooms, they have to be confident in using the technology. This confidence can be achieved by providing them with some experiences in using the technology through formal and informal training.

The findings of the study also highlight the benefits of TELL for students which contribute to the opportunities of exploring TELL. TELL's flexibility in accommodating students' different learning styles; the combination of TELL and textbooks to deepen students' understanding; TELL potential to enhance students' participation, motivation, and positive attitudes towards learning; and TELL potential to improve students' communicative skills are most of the benefits told by the participants. Similarly, some scholars point out the opportunities of TELL. Zhao (2005) states that teachers and school officials are increasingly acknowledging the role of the internet and digital resources which greatly motivate students, engage students, accommodate students' diverse learning styles, and enhance the quality of the teaching and learning process. Zhou & Wei (2018) describe TELL as any effort in learning a language utilizing technology to enhance the effectiveness of language learning, to motivate students, and to be flexible with students' different learning styles. Additionally,

Boonyopakorn (2016) researched the impacts of TELL on EFL learners' English communication. It is found that TELL serves as social media that help students practice their skills in communication and further enables them to improve their communicative competence in the four skills: listening, writing, reading, and speaking in various circumstances.

Further, exploring TELL allows pre-service teachers to perceive its attractiveness and usefulness. It allows them to practice using some interesting, creative, and free applications that are beneficial for their future teaching. Along with quality schools using the tools that technology makes accessible, teachers are demanded to be digitally proficient (Richards, 2015). Regarding the demand for teachers to be proficient in technology, Teachers of English as to Speakers of Other Languages (TESOL) has developed *The TESOL Technology Standards* comprising of some goals and standards for teachers' and students' literacy on technology (Son, 2018). The guideline outlines the abilities, competence, and curriculum application that should be acknowledged by teachers and demands teachers to incorporate technology appropriately to support the teaching and learning process. Thus, teacher education should enhance pre-service teachers' technological skills by

giving them opportunities to explore TELL before they teach. The benefits and experience they get from their exploration will be the bases for their future teaching and they will keep up with the latest trend in language learning which cannot be separated from technology.

Apart from the benefits, TELL exploration by pre-service teachers has also brought some challenges. These include the cost; teachers' negative attitudes and lack of experience and competence, and lack of resources. However, those issues can be anticipated or solved by utilizing free TELL applications and joining some free online seminars, workshops, and training available.

Some research has shown the importance of technological training in teacher education. Kessler (2006) on teachers' views of their preparation in the use of technology for language learning highlights that teachers lack experience in formal training and they have to find external sources from internet sites and discussions to improve their knowledge. Son (2014) also reveals that after training on technology for language learning, most teachers continue developing their professionalism by learning from various sources, like internet sites and friends. Mohalik & Poddar (2020)

studied the effectiveness of webinars and online workshops during the covid-19 pandemic. Some of the findings suggest that webinars and online workshops are affordable and the knowledge learned can be applied efficiently in the field by the participants. Thus, language teacher education should encourage pre-service teachers to develop their technological skills through formal and informal training which are budget friendly or even free and can provide more knowledge on TELL for them.

Last but not least, teachers' negative attitudes toward TELL and teachers' lack of experience, competence, and resources may result from their limited or even no experience of using technology. It is in agreement with Son (2014) who lists some reasons why some teachers do not apply technology in language learning after the training which include a lack of confidence, time, knowledge, and skills to implement the technology in the language classrooms. Kessler (2006) also adds that teacher candidates feel anxious about the implementation of technology in language learning at first, yet they started to understand its opportunities when they learn it deeper. In other words, teachers may feel reluctant, not confident, and negative about TELL before they learn TELL deeply, but after they see the

opportunities of TELL they will appreciate it.

CONCLUSIONS AND SUGGESTION

This research aimed to reveal the opportunities and challenges of pre-service teachers' exploration on TELL. As digital natives born with the emergence of technological advancement, the pre-service teachers still have basic knowledge and skills on TELL. Being digital natives does not guarantee them to be experts on technology for learning, including TELL. This is due to very few exposures to TELL that they obtained and they mostly made use of technology for getting pleasure rather than for learning. The participants are aware of the need for exploring TELL for their future teaching. Therefore, exploration on TELL is highly required by pre-service teachers. To conclude, pre-service teachers' eagerness for technology should be encouraged and directed to TELL exploration. It implies that language teacher education ought to give more chances for pre-service teachers to explore TELL.

REFERENCES

Adamo Software. (2021). *Impact of smartphones on education: the dawn of digital learning*. Adamo Software. https://adamosoft.com/blog/impact-of-smartphones-on-education/

Bacon, S., & Finnemann, M. (1990). A study of the attitudes, motives, and strategies of university foreign language students and their disposition to authentic oral and written input. *The Modern Language Journal*, *74*, 459–473.

Bashir, A., Bashir, S., Rana, K., Lambert, P., & Vernallis, A. (2021). Post-COVID-19 adaptations; the shifts towards online learning, hybrid course delivery and the implications for biosciences courses in the higher education setting. *Frontiers in Education*, *6*, 711619. https://www.frontiersin.org/articles/10.3389/feduc.2021.711619/full

Boonyopakorn, J. (2016). Technology enhanced language learning on English communication for EFL learners. *Technology*, *13*(3), 85–93.

Bracewell, R.J., Sicilia, C., Park, J., & Tung, I. (2007). The problem of widescale implementation of effective use of information and communication technologies for instruction: Activity theory perpectives. Tracking adoption and nonadoption of ICT activities by teachers. Paper presented at the 2007 Annual Meeting of the American Educational Research Association (AERA), Chicago, IL.

Cilliers, E. J. (2017). The challenge of teaching generation Z. *PEOPLE:*

International Journal of Social Sciences, *3*(1), 188–198. https://doi.org/10.20319/pijss.2017.31.188198

Consistency.uk. (2015, May 28). *Generation Y less satisfied than other generations.*

Corkett, J. K., & Benevides, T. (2015). Pre-service teachers' perceptions of technology and multiliteracy within the inclusive classroom. *International Journal of Psychology and Educational Studies*, *2*(2), 35–46. https://doi.org/10.17220/IJPES.2015.02.004

Creighton, T. B. (2018). *Digital natives, digital immigrants, digital learners: An international empirical integrative review of the literature.* *19*(1), 132–140. https://eric.ed.gov/?id=EJ1200802

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches [Fourth Edition].* SAGE Publications, Inc.

DiBella, K. S., Williams, K. G., & Glover, L. C. (2015). Improving pre-service teachers' readiness to integrate technology with cross-curricular adaptations. *Journal of Education and Human Development*, *4*(2), 84–97.

Egbert, J., Paulus, T. M., & Nakamichi, Y. (2002). The impact of CALL instruction on classroom computer use: A foundation for rethinking technology in teacher education. *Language Learning & Technology*, *6*(3), 108–126.

Gallardo-Echenique, E. E., Marqués-Molías, L., Bullen, M., & Strijbos, J. W. (2015). Let's talk about digital learners in the digital era. *The International Review of Research in Open and Distributed Learning*, *16*(3), 156–187. https://doi.org/10.19173/IRRODL.V16I3.2196

Ghanizadeh, A., Razavi, A., & Jahedizadeh, S. (2015). Technology-enhanced language learning (TELL): A review of resourses and upshots. *International Letters of Chemistry, Physics and Astronomy*, *54*, 73–87.

Habibu, T., Al Mamun, A., & Clement, C. K. (2012). Difficulties faced by teachers in using ICT in teaching-learning at technical and higher educational institutions of Uganda. *International Journal of Engineering Research & Technology (IJERT)*, *1*, 1–9. https://www.researchgate.net/publication/281349386

Hartshorne, R., & Ajjan, H. (2009). Examining student decisions to adopt Web 2.0 technologies: theory and empirical tests. *Journal of Computing in Higher Education*, *21*(3), 183–198.

Kessler, G. (2006). Assessing CALL teacher training: What are we doing and what could we do better. *Teacher education in CALL*, *14*, 23-42.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. SAGE Publications.

Mohalik, P. R., & Poddar, S. (2020). Effectiveness of webinars and online workshops during the COVID-19 Pandemic. *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.3691590

Mathew Myers, J., & Halpin, R. (2002). Teachers' attitudes and use of multimedia technology in the classroom: Constructivist-based professional development training for school districts. *Journal of Computing in Teacher Education*, *18*(4), 133-140.

Nzabonimpa, J.E., Prozesky, H. E. (2021). Triangulation in a quasi-experimental mixed methods study: Convergence, divergence, and complementarity of results. *International Journal of Quantitative and Qualitative Research Methods*, *9*(2).

Prensky, M. (2001). Digital natives, digital immigrants part 2: Do they really think differently? *On the Horizon*, *9*(6), 1–6. https://doi.org/10.1108/10748120110424843/FULL/XML

Radhakrishnan, J. (2017). Strategies for Technology Enhanced Language Learning (TELL) in language classes. *International Journal of Interdiciplinary Research in Arts and Humanities (IJIRAH)*, *2*(1), 162–165.

Rahimi, M. (Ed.). (2015). *Handbook of research on individual differences in computer-assisted language learning*. IGI Global.

Richards, J. (2015). Technology in language teaching today. *Indonesian Journal of English Laguage Teaching*, *10*(1), 18–32.

Richards, J. C., & Farrell, T. S. (2005). *Professional development for language teachers: Strategies for teacher learning*. Cambridge University Press.

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students*. Pearson.

Situmorang, K., Nugroho, D. Y., & Pramusita, S. M. (2020). English teachers' preparedness in Technology Enhanced Language Learning during Covid-19 pandemic – students' voice. *Jo-ELT (Journal of English Language Teaching) Fakultas Pendidikan Bahasa & Seni Prodi Pendidikan Bahasa Inggris IKIP*, *7*(2), 57–67. https://doi.org/10.33394/JO-ELT.V7I2.2973

Son, J.-B. (2014). Computer-assisted language learning: Learners, teachers and tools. In *APACALL Book Series*. Cambridge Scholars Publishing.

Son, J.-B. (2018). *Teacher development in technology-enhanced language teaching. Switzerland: Palgrave Macmillan.*

The Partnership for 21st Century learning. (2009). *21st Century student outcomes*. http://www.p21.org/our-work/p21-framework

Wallace, M. J. (1991). *Training foreign language teachers: A reflective approach*. Cambridge University Press.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The modern language journal*, *81*(4), 470-481.

Yeşilel, D. B. A. (2016). Technology-enhanced language learning for digital natives. *Participatory Educational Research*, *4*(2), 97–111.

Young, J. R., Young, J. L., & Hamilton, C. (2014). The use of confidence intervals as a meta-analytic lens to summarize the effects of teacher education technology courses on preservice teacher TPACK. *Http://Dx.Doi.Org/10.1080/1539152 3.2013.10782617*, *46*(2), 149–172. https://doi.org/10.1080/1539152 3.2013.10782617

Yushau, B. (2006). Computer attitude, use, experience, software familiarity and Perceived pedagogical usefulness: The case of mathematics professors. *Eurasia Journal of Mathematics, Science and Technology Education, 2*(3), 1–7.

Zhou, Y., & Wei, M. (2018). Strategies in technology-enhanced language learning. *Studies in Second Language Learning and Teaching*, *8*(2 Special Issue), 471–495. https://doi.org/10.14746/SSLLT. 2018.8.2.13.