



www.ijemst.net

Self-directed Use of Digital Devices for Out-of-class English Learning

Fauzi Muharom 
UIN Raden Mas Said Surakarta, Indonesia

Arif Nugroho 
UIN Raden Mas Said Surakarta, Indonesia

Hedy Ramadhan Putra P. 
UIN Raden Mas Said Surakarta, Indonesia

To cite this article:

Muharom, F., Nugroho, A., & Putra P., H. R. & (2022). Self-directed use of digital devices for out-of-class English learning. *International Journal of Education in Mathematics, Science, and Technology (IJEMST)*, 10(1), 257-271. <https://doi.org/10.46328/ijemst.2245>

The International Journal of Education in Mathematics, Science, and Technology (IJEMST) is a peer-reviewed scholarly online journal. This article may be used for research, teaching, and private study purposes. Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material. All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations regarding the submitted work.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

Self-directed Use of Digital Devices for Out-of-class English Learning

Fauzi Muharom, Arif Nugroho, Hedy Ramadhan Putra P.,

Article Info

Article History

Received:

19 March 2021

Accepted:

28 November 2021

Keywords

Autonomous learning

Informal learning

Digital devices for

English learning

Self-directed language

learning

Abstract

Twenty-first-century teaching and learning provide online resources accessible to foster learning experience across time and spaces in an informal context. Hence, enhancing learners' voluntary adoption of digital devices is crucial to augment the promising assistance of technology for English language learning. This study sheds some light on English for Specific Purposes (ESP) learners' voluntary digital devices for out-of-class language learning. A total of 267 Indonesian ESP learners participated in this study through a survey and semi-structured interview to examine how they were involved in informal digital learning of English beyond the classroom. The results showed that the learners used digital devices for both intentional learning to strengthen coursework and incidental learning to expand access to the target language. It was also found that the learners frequently employed digital devices for personalized aspects of the language rather than authenticity and connectivity. As for the digital device selection, the learners mostly preferred mobile phones to computers and tablets to carry out out-of-class English language activities. These results provide fruitful insights for educators on supporting ESP learners to engage in informal digital learning of English and achieve possible synchronicity between teachers' designed digital activities and learners' actual learning practices.

Introduction

Fostering learners' voluntary adoption of digital devices in an informal context is critical to enhancing the educational potentials of technology in English language teaching (ELT) (Lai et al., 2016; Lee et al., 2017). With the advanced development of technology, learners are encouraged to gain the initiative in their language learning beyond a formal classroom (Başok & Sayer, 2020; Bernardo-Hinesley, 2020; Lee & Drajadi, 2019; Nugroho & Atmojo, 2020). Accessibility to unlimited resources, time, and learning spaces characterize the current situation of educational landscapes and enable the self-directed performance of informal learning experiences (Sundqvist & Sylvén, 2016). Learners are provided with ample opportunities to develop learning autonomy and create personalized learning ecologies (Bachmair & Pachler, 2014; Keefer & Haj-Broussard, 2020). Thus, our language learners today are at the center of digital learning; thus, promoting their enthusiasm to be involved in self-

directed learning activities cannot be done without an in-depth understanding of their preferences on using digital devices for informal learning context (Kalimullina et al., 2021; Shatunova et al., 2021).

The concept of self-directed learning has initially defined by Knowles (1975) as "a learning process performed by individuals to gain knowledge, identify learning needs, select learning materials, and implement appropriate learning strategies in their initiative, with or without the assistance from others" (p. 18). In the present-day era of advanced development and affordances of technology, ELT scholars have acknowledged how learners use a range of digital devices and online resources to perform self-directed language learning beyond the formal classroom (Sundqvist & Sylvén, 2016). More recently, Lee (2019) refers to this self-directed language learning as informal digital learning of English (IDLE), which is further elucidated as English learning practices performed by learners in an informal context with the assistance of digital devices such as mobile phones, computers, and tablets. Lee (2019) has also emphasized that language learners commonly carry out both receptive IDLE activity and productive IDLE activity. The former indicates English learning activities where learners obtain knowledge and information as passive consumers (e.g., reading news, listening to English content, and watching English videos). On the other hand, the latter refers to English learning activities in which learners generate knowledge and information as active producers (e.g., chatting in English, writing comments in English, or sending emails to others in English).

Previous studies have explored language learners' views, beliefs, and perceptions of digital devices used for language learning in pedagogical classroom trials or experiments (Agostinelli & McQuillan, 2020; Alzubi, 2019; Burston, 2014; Petersen et al., 2014; Smith & Wang, 2013; Solikhah & Budiharso, 2020; Sung et al., 2015). These results have shown that learners provided positive concerns on digital language learning activities but unveiled some hesitations on the lack of assistance in such an autonomous learning environment. It was also found that learners preferred computers or laptops to mobile phones when choosing the most convenient digital devices to carry out learning activities beyond the classroom (Liu et al., 2015; Parker, 2019; Pollara & Broussard, 2011; Stockwell & Hubbard, 2013; Sylaj & Sylaj, 2020). Researchers have also revealed that learners acknowledged digital devices more positively to engage in receptive language learning activities but less positively to build social connectivity and collaboration in English communication (Chen, 2013; Dashtestani, 2016). Specifically, learners' use of digital devices in daily life such as reading news online, watching videos, and listening to audio are depicted as the most frequent learning activities, preceding other activities such as grammar exercises, vocabulary learning, and communication practices (Arslan & Tanis, 2018; Bradley et al., 2017; Gapsalamov et al., 2020; Jones, 2015; Kustati & Al-Azmi, 2018; Viberg & Grönlund, 2013; Vural, 2019).

Hence, previous research has yielded language learners' perceptions of digital devices for language learning. However, most of the previous studies were conducted in the pedagogically designed classroom environment in the formal context (Budiharso & Tarman, 2020; Burston, 2014; Lai, Wang, et al., 2016; Liu et al., 2015; Petersen et al., 2014; Pollara & Broussard, 2011; Smith & Wang, 2013). Only recently did a few studies examine English learners' voluntary adoption of digital devices for language development outside the formal education contexts (Jones, 2015; K Govindasamy & Moi Kwe, 2020; Lai & Zheng, 2017; Viberg & Grönlund, 2013; White & Mills, 2014). Notwithstanding, these initial inquiries into the learners' voluntary use of digital devices for

language learning in informal settings could not explore much on the nature and types of digital learning experiences performed by the language learners. As conceptualized by Kearney et al. (2012), digital learning in formal contexts is distinguished by three different dimensions of pedagogical frameworks, i.e. (1) personalization (the ownership of learning), (2) authenticity (contextual and realistic learning materials and tasks), and (3) connectivity (collaboration and connected learning across time and spaces). Kearney et al.'s (2012) pedagogical frameworks of digital learning were supposed to refer to the context of formal learning; therefore, whether the same dimensions of digital learning are manifested in out-of-class language learning is an empirical question and needs further exploration, especially in an Indonesian EFL setting.

This study is directed to shed some light on the research gap by examining the nature and characteristics of English learners' self-directed use of digital devices for language learning in an informal context. An in-depth understanding of learners' preferences and voluntary use of digital devices for out-of-class language learning is critical to reaching feasible synchronicity between teachers' designed digital-learning activities and students' learning practices. Moreover, such an understanding provides fruitful insights for educators on how they will assist learners in developing autonomous learning experiences across time and spaces in an informal context. The results of this study contribute further as literature enrichment in digital-assisted language learning by constructing an understanding of the nature of learners' voluntary adoption of digital devices for language learning, particularly for English for specific purposes students.

Method

Rationale of the Method

The main objective of this study was to explore English learners' self-directed use of digital devices to understand the nature of informal language learning activities beyond the classroom. A descriptive research approach was followed using a survey design to achieve the research objective. According to Fraenkel and Wallen (2009), the purpose of a survey is to portray the nature of a population to describe how the members view or value one or more variables. In the context of this study, the views and characteristics of English learners on self-directed use of digital devices for language learning beyond the classroom became the attribute to explore. The survey in this study employed a questionnaire to gather the required data followed by semi-structured interviews to examine a more in-depth understanding of how the English learners directed themselves to engage in language learning using digital devices beyond the classroom.

Participants

A group of undergraduate students at a university in Surakarta city, Central Java, Indonesia, were recruited for this study. They were studying English and enrolled in a compulsory English course in their first year of study in the university. Employing a convenient technique sampling, a total of 267 Indonesian English learners (174 females and 93 males with ages ranging from 18-24 years old) participated in this study. They were native Indonesian and learned English as a foreign language. The majority of the participants were sophomores ($n = 159$; 59%) and freshmen ($n = 108$; 41%). Seventy-eight percent (78%) of the learners self-rated themselves as of

beginning proficiency level, fourteen percent (14%) as of medium proficiency level, and only eight percent (8%) considered themselves as of advanced proficiency level. After removing several outliers, a total of 264 valid responses remained and were used for this study. Among the participants who declared to participate in a further interview, 16 were invited to reveal more detailed information about how they engaged in an autonomous learning experience beyond the classroom using mobile devices.

Instruments and Data Collection

This study employed a questionnaire referring to Kearney et al.'s (2012) pedagogical frameworks that consisted of three dimensions of digital language learning, i.e., personalization, authenticity, and connectivity. The questionnaire comprised three primary parts. The first part aimed to collect participants' demographic data (gender, age, length of study). The second part elicited the frequency of digital device use for language learning and how it supports the participants' development of different language aspects. Lastly, the third part was directed to obtain data on the dimensions of self-directed use of digital devices for language learning beyond the classroom. All items in the questionnaire were piloted by involving a group of English learners in a university in Surakarta, Indonesia, and were revised in several iterations due to the pilot study. The final version of the questionnaire was further used for data collection. The questionnaire was converted into an online survey using Google forms and was distributed to the participants from March to August 2020. The questionnaire link was spread employing emails and WhatsApp, the most frequently used messenger application in Indonesia.

Before the participants filled out the questionnaire, they were notified that their responses would be used as research data on the self-directed use of digital devices for English learning. They were asked to give perceptions on how they engaged in daily activities using digital devices about language learning. A six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree) was used to indicate the participants' agreement with the dimensions of self-directed use of digital devices for language learning in an informal context. The participants were also asked to report the average hours per week they engaged in digital learning activities beyond the classroom in another six-point Likert scale indicating 1 (never), 2 (less than 1 hour), 3 (1-3 hours), 4 (3-7 hours), 5 (7-14 hours), and 6 (more than 14 hours). In order to elicit the frequency of the participants' self-directed use of digital devices for various language skills development, a similar six-point Likert scale was further employed.

Following the administration of the questionnaire, semi-structured interviews were conducted with 16 participants (namely P1-P16) to explore more detailed information about how they use digital devices in an informal context of English learning. Prior to the individual interview using video call, each participant was asked to note several digital learning activities outside the classroom on a piece of paper. The notes were then used to stimulate the interview process, in which the participants were encouraged to convey and elaborate the way they carried out every learning activity they wrote in the paper. The semi-structured interviews lasted for about 15-25 minutes and were conducted in either Indonesian or English, depending on the participants' preferences. During the interview, the participants were provided with guidance, and only clarification and elaboration questions were asked to jump into a more detailed understanding of the topic being discussed.

Data Analysis

A sequential explanatory design (Creswel, 2009) was adopted as a data analysis technique in this study. The qualitative data obtained from semi-structured interviews were employed to confirm further the quantitative findings gathered from the questionnaire. Descriptive statistical analysis in the form of the mean (M) and standard deviation (SD) was firstly conducted to proceed with the participants' responses obtained from the questionnaire. To ensure the validity and truthfulness of the instrument, data, and the whole research process, one of the researchers, developed the questionnaire and conducted complete data analysis. After that, the other researcher checked and evaluated the instrument and data.

This study emphasized content-related evidence of validity concerning having others examine the format and content of the questionnaire and assess if it was appropriate (Fraenkel & Wallen, 2009). As for the interview data, an inductive data analysis was administered in this study by employing a cyclical and evolving coding process (Saldaña, 2015). The coding process was based on the main theme of this study about the participants' self-directed use of digital devices for English learning concerning different aspects of learning engagement when and where they have learning activities, how they make use of digital technology for language learning, what devices they use, and reasons for their selective learning engagement. The coding of each participant's response was further compared to find repeating ideas until the saturation point was achieved. Lastly, the researchers reviewed and integrated the emerging themes that led to the final results and later used them as the data conclusion. Regarding any disagreement between the researchers, stages of discussion and evaluation were conducted to achieve a consensus on the final agreement.

Results

Characteristics of Self-directed Use of Digital Devices for English Learning

The results of the survey depicted that the English learners frequently engaged in digital learning activities to assist their language development. As presented in Table 1, they spent an average of 4-5 hours per week for language learning using digital devices both for intentional learning (M = 4.12; SD = 1.05) and incidental learning (M = 4.07; SD = 1.17). The results of semi-structured interviews further revealed the frequent use of the electronic dictionary, internet sites (e.g., Edmodo and Podcast), Google Translate, and YouTube as digital learning aids to assist with homework and enhance their language development. The interviews also depicted the frequent use of various social networking sites as media of language learning activities such as watching videos and listening to songs on YouTube, online chatting using WhatsApp and Facebook, and reading popular news on Instagram and Line application. As one of the participants said:

“..... and I often use online dictionary or Google translate to find the meaning of difficult words that I encounter. Besides, I also open several internet sites such as Edmodo and Podcast when I do my homework or just to develop my English skill. In addition, I also often watch learning videos or just to listen my favorite English songs in YouTube to help me improve my language skill and cultural ability.”
(Int. P7).

Table 1. Types of Digital Learning Activities beyond the Classroom

Types of digital learning activities	M	SD
The use of mobile devices for intentional learning and strengthening coursework	4.12	1.05
The use of mobile devices for incidental learning and expanding access to the target language	4.07	1.17

Note: the value was based on the 6-point Likert scale with 1 (never), 2 (less than 1 hour), 3 (1-3 hours), 4 (3-7 hours), 5 (7-14 hours), and 6 (more than 14 hours) per week

In terms of language aspects, the results of survey described that the participants frequently used mobile devices to enhance receptive skills such as vocabulary (M = 4.94; SD = 1.61), reading (M = 4.71; SD = 1.43), grammar (M = 4.57; SD = 1.46), and listening (M = 4.12; SD = 1.38) (see Table 2). The results further indicated that they less frequently used mobile devices for productive language skills, i.e. writing (M = 3.65; SD = 1.21), speaking (M = 3.41; SD = 1.29), and cultural competence (M = 3.24; SD = 1.19). The results of semi-structured interviews confirmed these findings that the participants frequently performed autonomous learning using mobile devices to improve their vocabulary acquisition, understand a reading passage, and enhance grammatical competence. The only learning activities to enhance their productive skills were creating posts on social media and chatting with friends on messenger applications such as WhatsApp, Instagram, and Facebook. As two participants said:

“Yes... I always use my smartphone to help me find difficult words when I read an English text or search for an explanation when I have difficulty in doing grammar exercises, both of my homework and TOEFL exercises.” (Int. P1)

“For developing my productive skills, I often use my mobile phone to create writings in English by online chatting through WhatsApp or Facebook with my friends or updating status in my Instagram or sometimes I have a project to post a short speech in English and my teacher asks me to post it in my Instagram” (Int. P11)

Table 2. Digital Learning Activities for Different Language Aspects

Language aspects	M	SD
Vocabulary	4.94	1.61
Reading	4.71	1.43
Grammar	4.57	1.46
Listening	4.12	1.38
Writing	3.65	1.21
Speaking	3.41	1.29
Culture	3.24	1.19

Note: the value was based on the 6-point Likert scale with 1 (never), 2 (less than 1 hour), 3 (1-3 hours), 4 (3-7 hours), 5 (7-14 hours), and 6 (more than 14 hours) per week

Dimensions of Digital Learning in Informal Context

The survey results yielded three dimensions of digital language learning as conceptualized in Kearney et al.'s (2012) pedagogical frameworks, namely personalization (where learners utilize mobile devices to help them engage in English learning activities anytime and anywhere), authenticity (where learners utilize mobile devices to perform authentic learning activities), and connectivity (where learners utilize mobile devices to enhance communication and connection with social communities and native speakers of English). As presented in Table 3, the results showed that the participants positively perceive the use of mobile devices for personalization (M = 5.46; SD = 0.87), followed by connectivity (M = 4.94; SD = 1.06), and authenticity (M = 4.51; SD = 1.22).

Table 3. Dimensions of Digital Learning in the Informal Context

No	Statement	n	α	M	SD
Personalization		8	0.97	5.46	0.87
1	Informal digital learning significantly supports my language development			5.19	0.82
2	Mobile devices offer me the opportunity to learn English whenever and wherever I have spare time.			5.90	0.89
3	Mobile devices enable me to understand and utilize English properly at any time and any place.			5.73	0.83
4	Mobile devices help me perform self-paced and personalized English learning outside the classroom.			5.21	0.91
5	Digital learning using mobile devices is very flexible since it enables me to enhance my English ability without time and space limitations.			4.98	0.90
6	Digital learning using mobile devices enables me to expand my English learning activities outside the classroom.			4.90	0.84
7	Mobile devices enhance my autonomous learning of English.			5.96	0.94
8	Mobile devices encourage me to perform independent learning of English.			5.87	0.90
Authenticity		4	0.83	4.51	1.22
1	Mobile devices ensure the authenticity of my English learning.			5.01	1.23
2	Mobile devices motivate me to join events such as workshops and seminars held in English.			4.12	1.23
3	Mobile devices encourage me to participate in English social communities.			3.95	1.07
4	Mobile devices make my English learning resources and activities more authentic.			4.97	1.35

Connectivity		4	0.87	4.94	1.06
1	Mobile devices motivate me to have interaction with others in English.			5.15	0.98
2	Mobile devices improve my collaboration in English learning activities with peers and friends.			5.21	0.91
3	Mobile devices enhance my confidence to communicate with native speakers.			5.16	1.01
4	Mobile devices enhance my involvement in International English-based communities.			4.13	1.12

Notes: The value was based on the 6-point Likert scale with 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (a little bit agree), 5 (agree), and 6 (strongly agree)

The interviewed participants further conveyed their perceptions about mobile devices for connectivity in the target language communities and the authenticity of learning activities. Although the participants report less positive agreements in terms of connectivity and authenticity, some interesting findings are revealed in the interview section. Two-thirds of the participants in the interview section expressed that mobile devices have motivated them to perform productive skills (mostly in the form of writings) such as online chatting, posting ideas or opinions on social media, and commenting on others' postings. These activities were supposed to enhance their confidence to follow and join events hosted in English, such as seminars and workshops.

It was also found that learning English using mobile devices could stimulate the participants to join several English communities such as cross-cultural discussion forums, English conversation, and group discussion, and debating community. Moreover, the participants were concerned about cross-cultural knowledge that they could obtain from authentic materials such as videos and dialogues, which were accessible on social media, especially YouTube. As four of the interview participants said:

"..... and digital device activities through social media WhatsApp and Facebook also motivate me to create some writings in English, such as chatting, sharing ideas and opinion, and giving comments for my friends' postings." (Int. P12)

"Now I feel confident in joining events held in English. In the last two months, I frequently join online seminars and trainings conducted in English. Additionally, I feel more confident to involve in English discussion forum and conversation practices, especially through social media." (Int. P5)

"Outside learning activities using mobile devices give me an opportunity to find a lot of authentic materials such as videos, advertisements, songs, dialogues, etc. The most beneficial aspect that I can take from the learning activities is enhancing my cultural awareness and communicative competencies by using these authentic materials". (Int. P9).

"I agree that learning English using smartphone can increase the level of confidence. I am motivated to develop my speaking ability and I often watch how native speakers, especially public figures, deliver their speech. Therefore, I am now joining a debating community in my campus, and in the age of this pandemic, we often practices online using social media." (Int. P14).

Mobile Devices Selection for Language Learning beyond Classroom

In order to reach a comprehensive delineation of the findings, this study also examined the participants' preferences on the mobile devices they primarily use to perform language learning activities beyond a formal education setting. Based on the semi-structured interview responses, the participants performed various digital learning activities. It was found that mobile phones became the most frequently used mobile devices to assist their language learning compared to tablets and computers/laptops, as mentioned by the participants. In general, the participants preferred to use smartphones to seek instant help for vocabulary acquisition, grammar study, listening to music, playing games, online chatting, and language comprehension. The participants equally reported using tablets and laptops to assist the authenticity of language learning activities such as casual reading, surfing online, listening to conversation and dialogues (including seminars and workshops), and watching videos. As several participants said:

"I prefer to use my mobile phone to conduct some activities to improve my English ability. The activities are such as consulting online dictionary and translation tools to find meaning of words, studying grammar, and playing games." (Int. P10)

"I enjoy using smartphones to do online chatting with my friends or colleagues, mostly through social media like WhatsApp and Instagram." (Int. P2)

"Among mobile phones, tablets, and laptops, I prefer to use mobile phones to carry my digital English learning activities. Mobile phones are more flexible and portable so that I can start and enjoy learning at any time and any place I have a leisure time." (Int. P6)

"..... and for reading I choose laptops or tablets since the devices give me convenience in terms of layout and presentation rather than mobile phones". (Int. P11)

"I choose to use laptops or tablets when joining online seminars and workshops or watching videos and film. They are more comfortable." (Int. P1)

In addition, the interview responses showed that the participants' selective use of mobile devices was affected by the technological ease of use and affordances. As a participant said:

"I choose to use smartphone to help me with learning activities because it enables me to do my activities anytime and anywhere. Besides, smartphone is portable and I always bring it wherever I go. It is also known that using smartphone is more affordable than laptops and tablets." (Int. P14)

Discussion

The present study examines the nature of the self-directed use of digital devices for out-of-class language learning. The results show that EFL learners use digital devices to equip them with language knowledge and skills to strengthen coursework and expand the target language. Receptive language skills such as vocabulary learning, reading, and grammar become the most frequent language aspects that EFL learners learn using digital devices beyond the classroom. This study also reveals that EFL learners perform three dimensions of digital device use for self-directed out-of-class language learning (personalization, authenticity, and connectivity) as stated in Kearney et al.'s (2012) pedagogical framework. Through semi-structured interviews, this study further

depicts that the digital phone is the most frequent digital device used by EFL learners to engage in various digital learning activities outside the classroom, followed by laptops and tablets.

So, what do the findings imply for us? First of all, Lee's (2019) concept of informal digital learning of English (IDLE) beyond the classroom is confirmed in this study. With the present-day advancement of technology, digital devices offer ample opportunities for language learning development in a formal classroom and beyond the classroom (Nugroho & Atmojo, 2020). The results of this study emphasize the potential benefits of self-directed use of digital devices to enhance language learners' knowledge and skills in an informal context. This finding is similar to the results reported by some ELT scholars (Derakhshan & Hasanabbasi, 2015; Isbell, 2018; Lee & Lee, 2019; Zhang, 2020) that nowadays, English language teaching activities should begin to go beyond a formal classroom by fostering the use of digital technologies, despite the potential constraints. However, it is acknowledged that the learners' awareness to cope with informal digital learning of English activities outside the formal classroom seems to be the primary concern (Kirovska-Simjanoska, 2019). Hence, ELT teachers need to find a way to keep learners motivated in gaining maximum language inputs through accessible digital devices. Second, this study's results yield the three dimensions of digital learning conceptualized in Kearney et al.'s (2012) pedagogical framework. Particular implications of the three dimensions indicate several unique features of informal digital learning of English.

To begin with, participants' responses on the personalization dimension hint at two main aspects: the flexibility of learning across time and spaces and the opportunity to have on-the-spot assistance when learning the target language. This finding corresponds with the result reported by Lee (2020) that digital practice for out-of-class learning enables learners to have great numbers of language exposures because of its flexibility and affordances. Furthermore, the use of digital devices for entertainment purposes, such as watching videos, listening to music, and reading stories, represent the authenticity dimension performed by the participants. This result is similar to the finding of Lai and Zheng (2018) that learners tend to engage with videos and songs as authentic learning materials. As for the connectivity dimension, this study's result indicates that learners perform out-of-class digital activities to communicate with peer learners and join social communities in the target language. This finding suggests that using digital devices for connectivity in an informal context might be voluntarily carried out by advanced proficiency learners as communication in a foreign language requires language knowledge and cross-cultural understanding. Above all, these results imply that Kearney et al.'s (2012) framework of pedagogical language learning can be applied to the context of informal digital learning of English.

Third, this study further results in the learners' selection of technological devices for informal language learning. The finding suggests that the learners are closely associated with digital phones when performing informal learning and simple digital activities, and highly associated with laptops or tablets when coming to more challenging tasks and serious learning, which is found in line with the previous research findings (Ch'ng & Samsudin, 2013; Jarvis & Achilleos, 2013; White & Mills, 2014). In addition to the learners' selective use of digital devices, it is found that they are influenced by some factors such as technological affordances, perceived ease of use, and socio-economic contexts. Moreover, this result indicates EFL learners' characteristics and preferences in conducting various out-of-class learning activities using a range of digital devices. Thus, it is

worth saying that English teachers should begin to acknowledge and put learners' digital learning characteristics as a core consideration in designing digital-supported language learning in informal settings beyond the classroom.

The results of this study provide several implications for English language teaching. First, by investigating learners' self-directed use of digital devices outside the classroom, English teachers can use the results of this study to define and specify types of language learning activities to foster the learners' engagement and autonomy. Previous results show that the relationship between learners' autonomy and informal learning beyond the classroom is sophisticated; thus, the role of teachers is crucial (Nugroho & Mutiaraningrum, 2020; Xodabande, 2018). Reinders and Benson (2017) stated that if language teachers are not well-equipped with their students' learning activities outside the classroom, they may fail to foster the potential benefits of knowledge and skills that the students have. Second, the accessibility of digital learning through social networking sites and internet applications offers language learners ample opportunities to enhance the efficacy of informal digital learning in a more meaningful way. In this context, the most challenging issue is how to increase the students' motivation and make them aware of the advantages of out-of-class digital learning activities (Hembrough & Jordan, 2020; Yurdagül & Öz, 2018). Hence, the results of this study strongly suggest that language teachers should design interesting out-of-class learning activities by integrating accessible and available digital platforms.

Conclusion

This study sheds some light on English for specific purposes (ESP) learners' voluntary adoption of digital devices to assist language learning activities in an informal setting. It shows the nature and characteristics of the learners' digital device use for out-of-class language learning. Most of their learning activities are spent to gain language inputs of receptive skills such as vocabulary acquisition, grammar knowledge, reading activities, and listening practices.

This study reveals three dimensions of informal language learning of English with digital devices – personalization, authenticity, and connectivity – and suggests that the learners more frequently use digital devices to support personalized learning than to experience the authenticity of learning materials and social connectivity. They prefer to use the mobile phone as a digital device to carry out informal digital learning activities, and their selection is highly influenced by technological practicality and affordances. As for the limitations, this study was conducted in a foreign language context, with only 8% of the participants acknowledging themselves as having advanced proficiency.

As a result, the findings might be biased based on the particularities of the population and might result in different findings when the participants are considered advanced language learners. Moreover, learners from different socio-cultural and economic backgrounds potentially possess different profiles of informal digital learning. Therefore, future studies are strongly suggested to examine the self-directed use of digital devices for out-of-class language learning by involving different characteristics of participants and socio-cultural backgrounds.

References

- Agostinelli, A., & McQuillan, P. (2020). How Preservice Content Teacher Background Qualities Influence Their Attitude and Commitment to Supporting Multilingual Learners. *Journal of Curriculum Studies Research*, 2(2), 98-121. <https://doi.org/10.46303/jcsr.2020.12>
- Alzubi, A. (2019). Teachers' Perceptions on Using Smartphones in English as a Foreign Language Context. *Research in Social Sciences and Technology*, 4(1), 92-104. <https://doi.org/10.46303/ressat.04.01.5>
- Arslan, C., & Tanis, B. M. (2018). Building English Vocabulary Schema Retention Using Review Value Calculation for ESL Students. *Research in Social Sciences and Technology*, 3(3), 116-134. <https://doi.org/10.46303/ressat.03.03.7>
- Bachmair, B., & Pachler, N. (2014). A cultural ecological frame for mobility and learning. *MedienPädagogik: Zeitschrift Für Theorie Und Praxis Der Medienbildung*, 24, 53-74. <https://doi.org/10.21240/mpaed/24/2014.09.04.X>
- Başok, E., & Sayer, P. (2020). Language Ideologies, Language Policies and their Translation into Fiscal Policies in the U.S. Perspectives of Language Education Community Stakeholders. *Journal of Culture and Values in Education*, 3(2), 54-80. <https://doi.org/10.46303/jcve.2020.13>
- Bernardo-Hinesley, S. (2020). Linguistic Landscape in Educational Spaces. *Journal of Culture and Values in Education*, 3(2), 13-23. <https://doi.org/10.46303/jcve.2020.10>
- Bradley, L., Lindström, N. B., & Hashemi, S. S. (2017). Integration and language learning of newly arrived migrants using mobile technology. *Journal of Interactive Media in Education*, 2017(1), 1-9. <https://doi.org/10.5334/jime.434>
- Budiharso, T., & Tarman, B. (2020). Improving Quality Education through Better Working Conditions of Academic Institutes. *Journal of Ethnic and Cultural Studies*, 7(1), 99-115. <https://doi.org/10.29333/ejecs/306>
- Burston, J. (2014). The reality of MALL: Still on the fringes. *Calico Journal*, 31(1), 103-125. <https://doi.org/10.11139/cj.31.1.103-125>
- Ch'ng, L. K., & Samsudin, Z. (2013). Integration of Mobile Devices into Ubiquitous Learning by the 21 st Century Teenagers. *Education*, 3(6), 362-374. <https://doi.org/10.5923/j.edu.20130306.12>
- Chen, X.-B. (2013). Tablets for informal language learning: Student usage and attitudes. *Language Learning & Technology*, 17(1), 20-36. <http://dx.doi.org/10.125/24503>
- Creswel, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: University of Nebraska-Lincoln.
- Dashtestani, R. (2016). Moving bravely towards mobile learning: Iranian students' use of mobile devices for learning English as a foreign language. *Computer Assisted Language Learning*, 29(4), 815-832. <https://doi.org/10.1080/09588221.2015.1069360>
- Derakhshan, A., & Hasanabbasi, S. (2015). Social Networks for Language Learning. *Theory and Practice in Language Studies*, 5(5), 1090. <https://doi.org/10.17507/tpls.0505.25>
- Fraenkel, J. R., & Wallen, N. E. (2009). *The nature of qualitative research. How to Design and Evaluate Research in Education (Seventh Edition)*. Boston: McGraw-Hill, 420.


- Gapsalamov, A.R., Bochkareva, T.N., Vasilev, V.L., Akhmetshin, E.M. & Tatyana Ivanovna Anisimova, T.I. (2020). Comparative analysis of education quality and the level of competitiveness of leader countries under digitalization conditions. *Journal of Social Studies Education Research*, 11(2), 133–150. Retrieved from <https://jsser.org/index.php/jsser/article/view/1737/450>
- Hembrough, T., & Jordan, J. (2020). Creating a digital writing classroom: A mixed-methods study about a first-year composition tablet initiative. *International Journal of Instruction*, 13(2), 567–586. <https://doi.org/10.29333/iji.2020.13239a>
- Isbell, D. R. (2018). Online informal language learning: Insights from a Korean learning community. *Language Learning & Technology*, 22(3), 82–102. <http://hdl.handle.net/10125/44658>
- Jarvis, H., & Achilleos, M. (2013). From Computer Assisted Language Learning (CALL) to Mobile Assisted Language Use (MALU). *Tesl-Ej*, 16(4), 1-14.
- Jones, A. (2015). Mobile informal language learning: Exploring Welsh learners' practices. *eLearning Papers*, 45, 4-14.
- K Govindasamy, M., & Moi Kwe, N. (2020). Scaffolding Problem Solving in Teaching and Learning The DPACE Model - A Design Thinking Approach. *Research in Social Sciences and Technology*, 5(2), 93-112. <https://doi.org/10.46303/ressat.05.02.6>
- Kalimullina, O., Tarman, B. & Stepanova, I. (2021). Education in the Context of Digitalization and Culture: Evolution of the Teacher's Role, Pre-pandemic Overview. *Journal of Ethnic and Cultural Studies*, 8(1), 226-238. DOI: <http://dx.doi.org/10.29333/ejecs/629>
- Kearney, M., Schuck, S., Burden, K., & Aubusson, P. (2012). Viewing mobile learning from a pedagogical perspective. *Research in Learning Technology*, 20(1). <https://doi.org/10.3402/rlt.v20i0.14406>
- Keefer, N., & Haj-Broussard, M. (2020). Language in Educational Contexts. *Journal of Culture and Values in Education*, 3(2), 1-12. <https://doi.org/10.46303/jcve.2020.9>
- Kirovska-Simjanoska, D. (2019). Digital vs in-Person Learning Environment in ESP Classrooms: Let the Students Decide. *SEEU Review*, 14(1), 36–68. <https://doi.org/10.2478/seeur-2019-0004>
- Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers*. New York: Institute of Education Science
- Kustati, M., & Al-Azmi, H. (2018). Pre-Service Teachers' Attitude on ELT Research. *Research in Social Sciences and Technology*, 3(2), 1-13. <https://doi.org/10.46303/ressat.03.02.1>
- Lai, C., Shum, M., & Tian, Y. (2016). Enhancing learners' self-directed use of technology for language learning: the effectiveness of an online training platform. *Computer Assisted Language Learning*, 29(1), 40–60. <https://doi.org/10.1080/09588221.2014.889714>
- Lai, C., Wang, Q., Li, X., & Hu, X. (2016). The influence of individual espoused cultural values on self-directed use of technology for language learning beyond the classroom. *Computers in Human Behavior*, 62, 676–688. <https://doi.org/10.1016/j.chb.2016.04.039>
- Lai, C., & Zheng, D. (2018). Self-directed use of mobile devices for language learning beyond the classroom. *ReCALL*, 30(3), 299–318. <https://doi.org/10.1017/S0958344017000258>
- Lee, C., Yeung, A. S., & Ip, T. (2017). University English language learners' readiness to use computer technology for self-directed learning. *System*, 67, 99–110. <https://doi.org/10.1016/j.system.2017.05.001>

- Lee, J. S. (2019). Quantity and diversity of informal digital learning of English. *Language Learning and Technology*, 23(1), 114–126. <https://doi.org/10.125/44675>
- Lee, J. S. (2020). Informal digital learning of English and strategic competence for cross-cultural communication: Perception of varieties of English as a mediator. *ReCALL*, 32(1), 47–62. <https://doi.org/10.1017/S0958344019000181>
- Lee, J. S., & Drajadi, N. A. (2019). English as an international language beyond the ELT classroom. *ELT Journal*, 73(4), 419–427. <https://doi.org/10.1093/elt/ccz018>
- Lee, J. S., & Lee, K. (2019). Informal digital learning of English and English as an international language: The path less traveled. *British Journal of Educational Technology*, 50(3), 1447–1461. <https://doi.org/10.1111/bjet.12652>
- Liu, G.-Z., Kuo, F.-R., Shi, Y.-R., & Chen, Y.-W. (2015). Dedicated design and usability of a context-aware ubiquitous learning environment for developing receptive language skills: a case study. *International Journal of Mobile Learning and Organisation*, 9(1), 49–65.
- Nugroho, A. & Mutiaraningrum, I. (2020). EFL teachers' beliefs and practices about digital learning of English. *Elite: Journal of English Education, Literature, and Culture*, 5(2), 304–321. <https://doi.org/10.30659/e.5.2.287-303>
- Nugroho, A., & Atmojo, A. E. P. (2020). Digital learning of English beyond classroom: EFL learners' perception and teaching activities. *JEELS (Journal of English Education and Linguistics Studies)*, 7(2), 219–243. <https://doi.org/10.30762/jeels.v7i2.1993>
- Parker, J. (2019). Second language learning and cultural identity. *Journal of Curriculum Studies Research*, 1(1), 33–42. <https://doi.org/10.46303/jcsr.01.01.3>
- Petersen, S. A., Procter-Legg, E., & Cacchione, A. (2014). LingoBee: Engaging mobile language learners through crowd-sourcing. *International Journal of Mobile and Blended Learning (IJMBL)*, 6(2), 58–73. <https://doi.org/10.4018/ijmbl.2014040105>
- Pollara, P., & Broussard, K. K. (2011). Student perceptions of mobile learning: A review of current research. *Proceeding of the Society for Information Technology & Teacher Education International Conference 2011*. Chesapeake, VA: AACE, 1643–1650.
- Reinders, H., & Benson, P. (2017). Language learning beyond the classroom: A research agenda. *Language Teaching*, 50(4), 561–578.
- Saldaña, J. (2015). *The coding manual for qualitative researchers (3rd Eds)*. London: Sage.
- Shatunova, O., Bozhkova, G., Tarman, B., & Shastina, E. (2021). Transforming the Reading Preferences of Today's Youth in the Digital Age: Intercultural Dialog. *Journal of Ethnic and Cultural Studies*, 8(3), 62–73. DOI: <http://dx.doi.org/10.29333/ejecs/347>
- Smith, S., & Wang, S. (2013). Reading and grammar learning through mobile phones. *Language Learning & Technology*, 17(3), 117–134.
- Solikhah, I., & Budiharso, T. (2020). Exploring cultural inclusion in the curriculum and practices for teaching bahasa indonesia to speakers of other languages. *Journal of Social Studies Education Research*, 11(3), 177–197. <https://jsser.org/index.php/jsser/article/view/2658>
- Stockwell, G., & Hubbard, P. (2013). Some emerging principles for mobile-assisted language learning. *The International Research Foundation for English Language Education*, 1–15.

- Sundqvist, P., & Sylvé, L. K. (2016). *Extramural English in teaching and learning*. Springer.
- Sung, Y.-T., Chang, K.-E., & Yang, J.-M. (2015). How effective are mobile devices for language learning? A meta-analysis. *Educational Research Review*, 16, 68–84. <https://doi.org/10.1016/j.edurev.2015.09.001>
- Sylaj, V. Sylaj, A.K. (2020). Parents and Teachers' Attitudes Toward Written Communication and Its Impact in The Collaboration Between Them: Problem of Social Study Education. *Journal of Social Studies Education Research*, 11(1), 1-20. Retrieved from <https://jsser.org/index.php/jsser/article/view/1649/435>
- Viberg, O., & Grönlund, Å. (2013). Cross-cultural analysis of users' attitudes toward the use of mobile devices in second and foreign language learning in higher education: A case from Sweden and China. *Computers & Education*, 69, 169–180. <https://doi.org/10.1016/j.compedu.2013.07.014>
- Vural, H. (2019). The Relationship of Personality Traits with English Speaking Anxiety. *Research in Educational Policy and Management*, 1(1), 55-74. <https://doi.org/10.46303/repam.01.01.5>
- White, J., & Mills, D. J. (2014). Examining attitudes towards and usage of smartphone technology among Japanese university students studying EFL. *CALL-EJ*, 15(2), 1–15.
- Xodabande, I. (2018). Iranian EFL Learners' Preferences of Different Digital Technologies for Language Learning Beyond the Classroom. *International Journal of Education and Literacy Studies*, 6(3), 20. <https://doi.org/10.7575/aiac.ijels.v.6n.3p.20>
- Yurdagül, C., & Öz, S. (2018). Attitude towards mobile learning in English language education. *Education Sciences*, 8(3), 142. <https://doi.org/10.3390/educsci8030142>
- Zhang, R. (2020). Exploring blended learning experiences through the community of inquiry framework. *Language Learning & Technology*, 24(1), 38–53. [doi.org.10125/44707](https://doi.org/10.10125/44707)

Author Information


Fauzi Muharom

 <https://orcid.org/0000-0002-1908-4529>

UIN Raden Mas Said Surakarta
Faculty of Tarbiyah Science
Indonesia


Contact e-mail: fauzi.muharom@iain-surakarta.ac.id

Arif Nugroho

 <https://orcid.org/0000-0001-9805-9948>

UIN Raden Mas Said Surakarta
Faculty of Islamic Economics and Business
Indonesia

Heldy Ramadhan Putra P.

 <https://orcid.org/0000-0001-6518-3512>

UIN Raden Mas Said Surakarta
Faculty of Tarbiyah Science
Indonesia
