Exploring the Impact of Mobile-Assisted Language Learning (MALL) on the Autonomous English Learning of EFL Sophomores: A Case Study

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ABSTRACT

Keywords: autonomous learning, MALL, mobile, technology	This study explores the use of Mobile-Assisted Language Learning (MALL) among sophomore English majors at a Vietnamese university, focusing on their engagement, perceptions, and its impact on their autonomous English language learning. Specifically, it identifies commonly used mobile devices and applications, analyzes the impact of MALL on students' language competencies, and examines how students perceive the role of MALL in their learning autonomy. Data were collected from 150 sophomores via a questionnaire, revealing that smartphones and applications such as Duolingo, ELSA Speak, and YouTube were the most popular tools for improving vocabulary and listening skills. The findings suggest that while MALL offers significant benefits, such as accessibility and convenience, students also face challenges, including distractions and limited pedagogical explanations. Despite these drawbacks, MALL was positively perceived by students for enhancing their language proficiency and fostering independent learning. The study recommends further exploration into integrating MALL with blended and flipped classroom approaches to maximize its advantages in English language education.

Introduction

Technology has profoundly impacted traditional learning methods in the rapidly evolving education landscape. Once confined to the classroom and specific schedules, the concept of acquiring knowledge has transformed with the integration of digital tools. Today, technology and education have merged, modernizing learning methods and creating new opportunities for students. Among these advancements, MALL has emerged as a significant area in foreign language education, driving transformation in how students approach language acquisition. This integration of mobile technology has expanded learning opportunities, reshaped learning styles, and altered the strategies employed in language teaching.

Researchers such as Pourhossein Gilakjani and Sabouri (2014) emphasized that technology enables learners to manage their own learning processes, providing access to a vast array of materials outside the control of traditional instructors. With mobile devices such as smartphones, tablets, and laptops, learners can now access study materials conveniently, anytime and anywhere. This level of accessibility not only encourages active learning but also fosters greater autonomy in seeking and acquiring knowledge. Studies have demonstrated that MALL can significantly facilitate learning and improve learners' language proficiency (Baek & Lee, 2018; Kassem, 2018; Mozes, 2019; Perez Paredes et al., 2018; Zaki & Yunus, 2015). However, while MALL offers these benefits, the degree to which it supports academic autonomy still needs to be explored and warrants further investigation.

This study aims to explore the application of MALL and its impact on the autonomous learning of second-year English majors at a university. Specifically, the study seeks to identify the types of mobile devices and applications that students prefer and regularly use in their self-study efforts, offering insights into which technologies are most effective for language learning. Moreover, the study further aims to identify the specific knowledge and skills that students can develop through the implementation of MALL, focusing on the amount of time they spend learning with mobile resources and how they use them to improve aspects of their English proficiency, such as vocabulary, listening, and speaking skills. Finally, the study explores students' perceptions of MALL's role in enhancing their self-study practices and foreign language proficiency. By examining students' experiences and evaluations of MALL, the research provides valuable insights into how these technologies can motivate learners and improve their learning outcomes.

The findings of this study are expected to contribute to a deeper understanding of the current state of autonomous English language learning with MALL resources and inform the adaptation of teaching strategies to support independent learning better using mobile devices. Furthermore, as technology continues to evolve, the inclusion of digital and mobile elements in English language education should be seriously considered to keep pace with advancements. The students' evaluations in this study offer practical and theoretical contributions, providing a foundation for further integration of MALL into language teaching and learning in today's increasingly technological society.

Literature review

Definitions of key concepts

MALL

According to Kim and Kwon (2012), since Chinnery (2006) first coined the term mobile-assisted language learning (MALL), the use of mobile devices to support language learning has grown rapidly. Despite being classified as a subset of mobile learning and computer-assisted language learning, Kukulska-Hulme and Shield (2008) highlighted the distinction between MALL and CALL. The key difference lies in MALL's utilization of personal and portable devices, which offer an alternative approach to learning and "continuity or spontaneity of access and interaction across different contexts of use" (p. 273). Furthermore, MALL can be viewed

as a language learning variant that incorporates applied mobile learning (Dağdeler et al., 2020). As defined by Rodríguez-Arancón et al. (2013), MALL refers to "a teaching and learning methodology that uses mobile phones or other handheld devices with some form of wireless connectivity, such as phones, PDAs, and tablets, among others" (p. 1190). In addition, O'Malley et al. (2005) defined MALL as encompassing "any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies" (p. 6). Therefore, MALL is a creative and fun way to learn a new language (Azar & Nasiri, 2014). It is seen as a convenient way to help learners of English as a foreign language (EFL) improve their studies. Moreover, MALL is considered an excellent solution to the time and place-related constraints of foreign language learning (Miangah & Nezarat, 2012).

Learner autonomy

The term "learner autonomy" has been around for a long time and is no longer a stranger in the education industry (Jaelani & Adung, 2022). Educators and experts have discussed this term in various concepts in their research studies. Pichugova et al. (2016) considered Henri Holec the father of learner autonomy, as he first introduced this term in 1981. In Holec's view, as cited in Teng (2018), "learner autonomy is the ability to control one's own learning." He also defined the choice of objectives, defined content and processes, selected methods and processes, supervised the acquisition process, and evaluated learned content as part of learner autonomy. Additionally, similar to student-centered learning, autonomous learning requires students to take an active role in their learning whenever they are. Teng & He (2015), in other words, then defined learner autonomy as "a learning environment in which students learn how to set priorities, decide when and where to study, and pace their learning". Learner autonomy is also considered the students' ability to independently make their own organization, prediction, and management to achieve their specific goals in the learning process (Jaelani & Adung, 2022).

Results of previous studies

Common MALL devices and resources used in learning

Mobile phones

Baleghizadeh and Oladrostam (2010) stated the results of previous studies by various authors on the effectiveness of mobile phones in language learning. Among them was a Japanese study investigating mobile phone use in education (Thornton & Houser, 2005). In this study, English vocabulary lessons were delivered to learners' mobile phones via SMS, and a website was developed to explain English idioms, which students can connect to via phones using 3G. The results showed that mobile phones were popular among students, and learners were willing to read texts on the small screen of their mobile phones. Thus, mobile phones have been found to be effective for foreign language learners. In another study, they were stated to provide learners with opportunities to express themselves in various situations (Sole et al., 2010). Students must use their mobile devices to report assignments outside of class, and mobile devices have also helped learners be engaged and interact better. Besides, contextual learning can be promoted by using mobile devices. In this way, information can be acquired at the learners' own locations in a manner that suits their needs. According to the findings of Benlaghrissi and Ouahidi (2024)

Jawad (2024), and it was determined that the utilization of mobile phones has a notable effect on bolstering students' self-assurance in their listening and speaking abilities. In the study, a group of students were required to chat in Indonesian on their mobile phones. The research findings indicated that they were all satisfied with their privacy and freedom when using their mobile devices. Additionally, teachers can listen to students' conversations, which helps them better identify each student's difficulties. These findings have shown the astonishing effect of mobile phones on improving language skills.

Quizlet

Recently, Kassem (2018) mentioned in his research paper that a website named Quizlet, which uses web-based flashcard programs, has become a popular tool for facilitating students' vocabulary learning. This website allows users to interactively retrieve word meanings using a set of flashcards and a variety of learning tools. The online flashcard program is so popular because it increases students' vocabulary and tracks their progress. In addition, it uses multimedia to introduce new vocabulary, allowing students to learn at whenever and wherever as long as a stable Internet connection is available to them (McLean et al., 2013). Consequently, many studies have pointed out Quizlet's effectiveness in helping students improve their vocabulary. Specifically, Davie and Hilber (2015) carried out a research project to understand engineering college students' attitudes toward using the Quizlet app to learn vocabulary. A vocabulary test measures their ability to learn vocabulary. The study's findings revealed that students could significantly improve their vocabulary. In addition, students were found to be significantly interested in using Quizlet, as they found it a convenient and enjoyable learning tool. Likewise, Dizon (2016) confirmed that the use of Quizlet had a significant impact on the English vocabulary development of Japanese students.

YouTube

YouTube is one of the most popular resources for MALL nowadays. Functioning as a video-sharing website, YouTube enables users to upload, download, and share distinct types of videos. It is the most widely utilized video-sharing platform globally, encompassing a wide range of content such as movie excerpts, documentaries, comedy sketches, music videos, and more. From home to abroad, everyone can watch videos easily. Currently, many people prefer to learn through videos because they can motivate learners and make them feel as if they are in the real world. This means language learning is contextualized naturally, allowing students to experience language authentically in a visualized way. YouTube has a lot to offer as an effective tool and as a source of free material for teaching and learning English, allowing students to learn English both inside and outside the classroom and explore different aspects related to the language such as the variety of English cultures and accents. A research paper by Boster et al. (2004, as cited in Alqahtani, 2014) mentioned that videos can increase students' attention and curiosity and that YouTube can be easily accessed by students from mobile phones or laptops, which they can use anytime in and out of the classroom. Learners are more motivated and eager to learn after watching the videos. In addition, visual aids have a greater impact on listening comprehension than text (Shaojie et al., 2022). Alqahtani's study (2014) showed that documentary videos improve students' listening comprehension because they can infer the meaning of words from the actions that occur in the videos they watch and listen to. When

students are exposed to real language spoken by native speakers, they also develop their motivation and enthusiasm when learning with YouTube resources. Therefore, using YouTube videos stimulates students' attention and interest in learning English independently. Similarly, Bravo et al. (2011) realized that videos can be used as an educational tool to improve students' motivation, and their findings revealed that students watched YouTube videos more than other means.

ELSA Speak

ELSA is an Android application that can be downloaded for free from the App Store or Google Play, which is developed with multiple functions to improve the learners' pronunciation with American accents by providing them with different exercises to pronounce words, phrases, or sentences correctly. It is designed with a microphone icon that allows learners to use it and practice speaking directly and immediately. Kholis (2021) performed a study on pronunciation assessments, including spelling words and reading texts. The author realized that by using ELSA Speak, the students were able to hear and imitate sounds similar to their native language, and the system could instantly receive students' recordings and edit them into an optimal version. In fact, students can effectively participate in the learning process and become more motivated when using the ELSA Speak App during pronunciation lessons. The ELSA Speak app provides features to help students learn a large number of English words and phrases easily and independently in their native language. In addition, it also provides practical functions to develop communication skills, self-study activities, and voice correction, which help students gain a greater understanding of the structure and pronunciation of English input, know the mistakes they made, and correct them directly. Therefore, Kholis (2021) indicated that the ELSA Speak app can successfully engage students in language learning. Tran and Vu's research on the use of the ELSA Speak app (2024) furthermore underscores the importance of creating an exceptional self-directed learning environment that empowers learners to take charge of their learning process and engage in critical self-reflection. The study also highlights the engaging and enjoyable nature of the experience, along with its potential to address challenges such as the need for conversation partners and concerns about social judgment.

Duolingo

Duolingo is another MALL application, a free language learning program designed for mobile devices. Learners can easily download it on their mobile phones for free from the App Store or Google Play. This application provides a fun and simple platform for learning different languages. According to Ahmed et al. (2022), Duolingo is one of the mobile language learning applications that can help people develop vocabulary knowledge in speaking as well as in communication almost anytime and anywhere, as long as they have a mobile device connected to the Internet. Learners can quickly absorb the amount of English knowledge they need according to their needs through this application.

Moreover, Duolingo has many outstanding features for users (Ahmed et al., 2022). Learners using Duolingo are motivated to learn through a series of tasks (Maulya, 2023). Duolingo makes learning English easier because it is designed like an advanced game program (Munday, 2016). Additionally, Duolingo allows anyone to take free language classes (White, 2014) and promotes

learning dynamics and the acquisition of new vocabulary (Ahmed et al., 2022). Therefore, Duolingo is an effective tool to enhance vocabulary in and out of language classrooms.

How MALL has been implemented to promote students' autonomy in learning English

As MALL has emerged as a pivotal tool in fostering learner autonomy in English language education, the integration of mobile technologies into language learning has shown students' increased control over their learning processes, as well as more engagement and self-directed learning capabilities. Primarily, MALL has been implemented through mobile applications tailored for language learning. Such apps as Duolingo and Memrise have been used to enhance speaking skills in EFL learners and it has been revealed that the gamified nature of these apps, combined with their accessibility, encouraged students to practice speaking independently and frequently, thus promoting autonomy(Jaelani & Adung, 2022). The apps also provided instant feedback, allowing learners to self-regulate their progress and address gaps in their skills. Besides, MALL has also been implemented outside the traditional classroom, where students can use mobile devices to supplement their learning in class. The flexibility of using mobile devices outside the classroom was found to allow students to set their learning schedules, fostering time management skills and independent study habits (Sato et al., 2020). Lai and Zheng (2018) similarly realized that when MALL was implemented through self-directed learning activities, such tools as podcasts, YouTube tutorials, and mobile dictionaries helped improve students' listening and reading skills. Moreover, MALL implementation has involved task-based learning that integrates real-world scenarios. For example, Alzubi and Singh (2017) examined Saudi undergraduates who used mobile devices to complete project-based tasks, such as creating multimedia presentations or engaging in peer discussions via mobile platforms. These tasks required learners to actively apply their language skills in authentic contexts, promoting autonomy and collaborative learning. Finally, collaboration has also been an essential aspect of MALL implementation. Stockwell and Hubbard (2013) emphasized that mobile devices enable peer interaction through tools like WhatsApp, Google Classroom, and collaborative note-taking apps. These tools have enabled learners to exchange ideas, provide feedback, and engage in group activities outside traditional classroom settings, fostering both independence and teamwork.

Impacts of MALL on autonomous EFL learning

In the implementation of MALL in EFL learning, there have also been several challenges that can impact its effectiveness in fostering autonomy. One notable issue is the potential for distraction. Learners using mobile devices for educational purposes may need help with other applications, such as social media or messaging platforms, which divert their attention from learning activities. Kassem (2018) highlights this challenge, noting that distractions can undermine learners' ability to stay focused and consistent in their studies. Additionally, the small screens of mobile devices and limited battery life can hinder prolonged study sessions, making it uncomfortable for learners to engage in extended learning (Metruk, 2020). Another challenge associated with MALL is the need for more detailed pedagogical support. While many MALL applications can provide answers and corrections, they often need more thorough explanations, confusing learners about their mistakes. This mechanical feedback can reduce the effectiveness of autonomous learning, particularly for students who need more structured guidance (Kassem,

2018). Furthermore, learners are highly dependent on Internet connectivity when using MALL applications, which can be a limitation in areas with poor or unreliable Internet access.

Despite these challenges, the benefits of MALL in promoting autonomous learning are considerable. MALL has emerged as a transformative tool in foreign language education, offering unique benefits that enhance learners' autonomy and self-regulated learning (Alzubi & Singh, 2017; Lai & Zheng, 2018; Sato et al., 2020) also emphasized that mobile technologies, when integrated effectively, can significantly enhance learner autonomy by providing access to diverse learning resources and enabling self-directed learning practices. MALL allows students to access language materials on their mobile devices at any time and in any location, which has been proven to promote learner independence. According to Jaelani and Adung (2022), Kukulska-Hulme and Shield (2008), and Zaki and Yunus (2015), MALL enables learners to take control of their own learning processes by providing them with flexibility and accessibility in how and when they engage with language materials, which is crucial for fostering autonomy, a vital aspect of successful language acquisition.

One of the primary advantages of MALL is its ability to support personalized learning experiences. Depending on their needs and preferences, learners can choose which language skills to focus on, such as vocabulary, pronunciation, or listening comprehension. Studies have shown that learners using MALL tend to demonstrate higher levels of motivation and engagement due to the customizable nature of the learning tools (Baek & Lee, 2018). The autonomy provided by MALL allows learners to make decisions about what and how they learn, leading to better learning outcomes (Teng & He, 2015). For example, as Nguyen (2024) investigated the use of online resources accessed via personal devices in the learning practices of English majors, the study reveals that students frequently utilize their smartphones and laptops for reading practice, particularly for engaging with leveled news content. This approach is viewed positively, with students noting benefits such as improved vocabulary acquisition through learning word families and collocations, enhanced reading skills through skimming techniques, and a broader understanding of current events. Furthermore, MALL encourages learners to take initiative, a key component of autonomous learning. Research by Little (2007) found that learners who exhibit more autonomy are more likely to achieve higher levels of proficiency in foreign languages. Besides, MALL applications such as Duolingo, ELSA Speak, and YouTube have provided immediate feedback to learners, empowering them to monitor their performance and make necessary adjustments. This real-time interaction enhances learners' ability to self-assess, an essential feature of autonomous learning (Davie & Hilber, 2015). The ability to self-correct through personalized learning applications reinforces autonomy by reducing reliance on teachers and allowing learners to progress in their language studies independently.

Additionally, MALL facilitates collaboration by enabling students to interact with peers and teachers via mobile platforms, creating a supportive learning environment that encourages knowledge sharing and discussion (Oz, 2015). MALL also plays a critical role in reducing learners' anxiety, especially in speaking tasks. Platforms that allow learners to practice their speaking skills privately provide a safe space where they can build confidence without fear of judgment from peers or teachers (Baek & Lee, 2018). This reduction in anxiety further promotes

autonomous learning by creating a more comfortable and engaging learning experience.

As for the development of language knowledge and skills, the application of MALL has been found to be effective for EFL students. First, vocabulary acquisition is one of the most enhanced areas, with applications like Duolingo and Quizlet providing interactive and personalized learning environments that support vocabulary retention and expansion (Davie & Hilber, 2015; Ahmed et al., 2022). In addition, pronunciation and speaking skills have significantly improved through apps such as ELSA Speak, which utilize artificial intelligence to give immediate feedback on pronunciation accuracy, helping learners refine their speaking abilities (Kholis, 2021; Baek & Lee, 2018). Besides, listening comprehension has benefited from MALL by integrating video platforms like YouTube, which offers learners exposure to authentic spoken language in diverse contexts (Alqahtani, 2014; Bravo et al., 2011). Finally, reading and writing skills are also supported by MALL, with such tools as Oxford Online English which provides structured lessons for improving grammar and writing fluency (Perez Paredes et al., 2018; Moura et al., 2020). These findings indicate that MALL is a comprehensive tool that enhances a wide range of language skills, promoting more autonomous and effective learning.

In conclusion, MALL has positively impacted the development of autonomous learning among EFL learners. Its benefits include increased motivation, personalization of learning, and greater opportunities for independent study. However, for MALL to be fully effective, educators must address the challenges it presents, such as distractions, limited pedagogical feedback, and technological limitations. With careful implementation and support, MALL has the potential to continue fostering autonomous learning and improving language proficiency among EFL learners in an increasingly mobile and digital world.

Roles of students' autonomy in improving their language proficiency

Learner autonomy involves self-inquiry to gain knowledge, reflected in how learners find and access valuable knowledge resources. This process can be mediated and optimized through MALL, in which a number of pre-existing contexts are set up to help learners improve their ability to interact in context and support language use so that knowledge can be easily gained by increasing understanding of the linguistic context of communication (Hunter & Cooke, 2007). In a study by Melvina and Julia (2021), the relationship between learning autonomy and English proficiency was investigated among Indonesian undergraduates. The results showed a strong positive relationship between learners' autonomy and language ability. Moreover, learner initiative has been considered by many researchers as an element that determines the learning process and the success or failure of foreign language acquisition. In other words, learner autonomy significantly contributes to foreign language proficiency (Melvina & Julia, 2021). In addition, Little (2007) emphasized the interdependency and integration between developing learners' autonomy and enhancing language proficiency. Therefore, learning autonomy should be considered as both an essential tool and an indispensable goal of learning. This means that proactive, hard-working, and organized students can adjust their training to achieve good grades and succeed in English language learning.

Gaps in the literature

There are several reasons why this study holds its significance. Firstly, many previous studies

have primarily focused on a specific aspect, such as vocabulary, grammar, or speaking, when exploring the application of MALL in foreign language learning. However, this study goes beyond that by demonstrating how MALL can be applied across various areas of English learning, including students' preferences in MALL application. Next, findings of the integration of MALL in students' "learning autonomy" serve as the foundation for teachers and students to find more effective ways to enhance students' self-study activities and limit the drawbacks that may exist. Finally, such issues have yet to be profoundly investigated in the context of current Vietnamese universities. Therefore, more detailed research is needed to examine autonomous learning through MALL among EFL learners at university, who are expected and required to perform such a significant amount of self-study and self-training time.

Research Questions

To fulfill the purpose of the study, the study was conducted to answer the following research questions:

1. What Mobile-Assisted Language Learning (MALL) resources have EFL sophomores used in their self-study for language development?

2. How have EFL students implemented MALL in their autonomous EFL learning?

3. How have EFL students perceived MALL in their autonomous EFL learning?

Methods

Pedagogical Setting & Participants

the study focused on second-year students studying in a Bachelor of English Language program at a university in Vietnam. This university trains English-majored students from various parts of the country, each with a different background in English. As part of the curriculum, students are required to improve their language skills and knowledge, including listening, speaking, reading, writing, vocabulary, grammar, and pronunciation. In addition to classroom instructions, students are tasked with self-study hours and are encouraged to spend considerable time improving their language proficiency independently. Mobile devices and applications are also used as learning tools; however, the effectiveness of their use and student evaluations of these resources still need to be determined. Given these factors, the author believes that it is appropriate to conduct a survey on the initiative of second-year students to learn English through MALL. The study involved 150 second-year English majors at the university, who were selected based on convenience sampling. This group of students was expected to have experienced MALL because they all possessed at least one mobile device connected to the Internet and were familiar with their self-study responsibilities. They were informed of the survey's purposes and their anonymity and were voluntarily invited to join.

Design of the Study

The study chose the quantitative method to ensure comprehensive findings for the issue. This approach was considered appropriate to the nature of the study and well-suited to the intended objectives. Using a quantitative approach, the researchers gained valuable insights into the

participants' learning autonomy and the specific advantages and challenges associated with applying MALL in foreign language education. To efficiently collect and analyze data, the researchers used Google Forms, which supports a variety of data collection methods such as online surveys, mobile surveys, and email surveys. This tool also allows for the rational processing of the data. Originally, the questionnaire was designed based on a review of the literature, which informed the researchers of the survey's constructs. Before being employed to collect data, an expert reviewed the questionnaire and piloted with two students to check whether there was anything that needed to be clarified or understood.

Data collection & analysis

A survey consisting of four different parts with mainly multiple-choice questions was distributed online using Google Forms. The final part of the questionnaire used a five-point Likert scale ranging from "Strongly disagree" to "Strongly agree" to assess the participants' levels of perception of the advantages and disadvantages of MALL in an autonomous learning context. The researcher used a variety of question formats, including multiple-choice, checkboxes, and grids, to collect the data. After that, the obtained data were calculated and analyzed with Excel to find the answers to the research questions. The results were then presented in figures to help visualize the findings and discussed in relation to those of previous studies.

Results/Findings and Discussion

MALL resources used in EFL sophomores' autonomous study
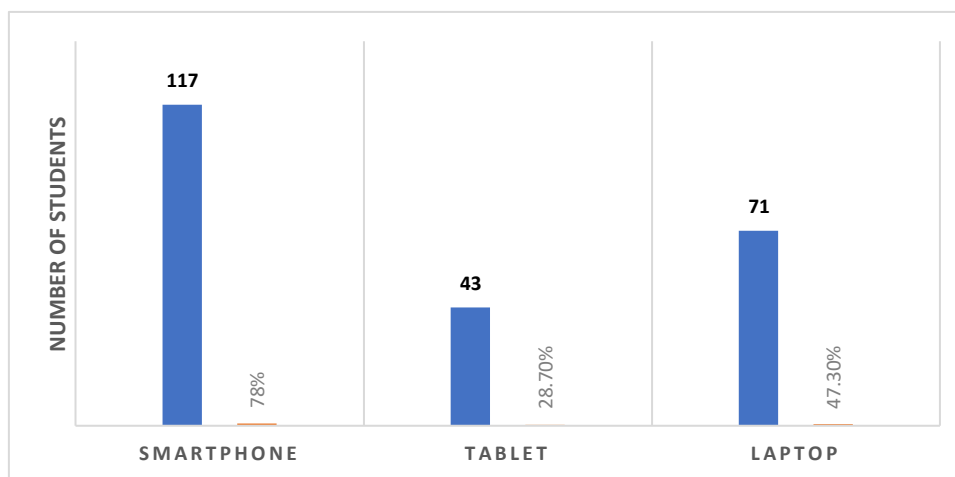
Mobile devices

Fig. 1. Mobile devices used by EFL sophomores

This bar chart shows the mobile devices EFL sophomores use when studying English independently. Smartphones accounted for the highest percentage of the devices, at 78%. Meanwhile, laptops accounted for only 47.3%, while tablets accounted for the lowest percentage, at 28.7%. Therefore, smartphones were the most preferred device for students to self-study English. The fact is that every student has at least a personal phone, which is compact

enough for them to carry with them to study anytime and anywhere easily. Smartphones are usually installed with many features and built-in tools to support learning; learners need to download applications or enter web-based learning platforms to access knowledge content and learn instantly. Equivalent results from Thornton and Houser (2005) revealed that mobile phones were the most popular devices among students, and learners were willing to read texts on these gadgets' small screens. Mobile phones were also realized to be amazingly effective in improving language skills, allowing learners to express themselves in a variety of situations (Sole et al., 2010). Besides, they significantly improved students' confidence in their listening and speaking skills (Benlaghrissi & Ouahidi, 2024; Jawad, 2024). While laptops are essential and quite popular with university students, they are larger and heavier in weight than mobile phones, making them disadvantageous to carry or use in different places. In contrast, as all students not own only moments, this device was chosen less by students for use in their self-study activities. In conclusion, smartphones were the most popular and familiar devices students used for their autonomous training.
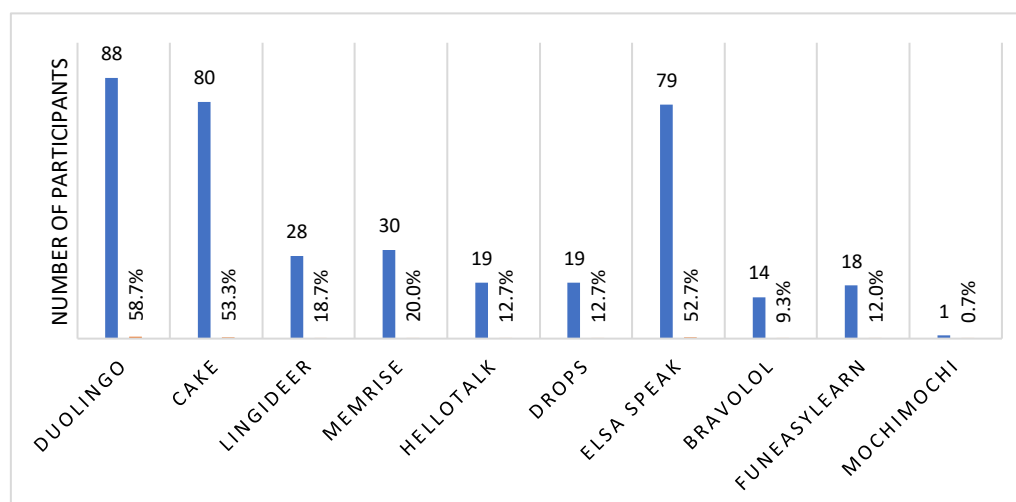
Mobile applications

Fig.2. Mobile applications used by EFL sophomores

This bar chart illustrates the applications used by EFL sophomores in their self-study. Overall, Duolingo was chosen by the most participants (58.7%), while MochiMochi was used by only 0.7% of the students. Duolingo is one of the most popular and downloadable free language learning platforms. It has been trusted and chosen by many surveyed sophomores because it individualizes learning paces and levels for individual students and has lessons with repetition of vocabulary to help students learn and memorize the words. Similarly, findings in the study of Ahmed et al. (2022) showed that Duolingo had beneficial effects in such aspects as promoting learning motivation and acquiring new vocabulary. Duolingo can be considered a viable tool for improving vocabulary. Besides, Cake and ELSA Speak options accounted for a high percentage of 53.3% and 52.7%, respectively. Many students chose these two applications because they had interesting and user-friendly designs. Cake is created to form learners' reflexes when listening and speaking through short clips cut from famous movies. ELSA Speak is a beautifully designed application that helps learners improve their pronunciation as well as their

speaking skills. The system would record and deeply analyze users' voices in each lesson using A.I. technology. Then, it would point out the incorrectly pronounced sounds or words that need improving. In contrast, MochiMochi is also a vocabulary learning application with a prominent feature that announces the golden time to review vocabulary. However, learners often get bored with its interface as well as the learning method. Therefore, only one participant chose this application. In addition, there are other applications known and used by 10-20% of the survey students such as Memrise (20%), LingoDeer (18.7%), HelloTalk (12.7%), Drops (12.7%), FunEasyLearn (12%), and Bravolol (9.3%). In conclusion, most EFL sophomores have made use of Duolingo, Cake, and ELSA Speak applications to improve their language knowledge and skills autonomously.
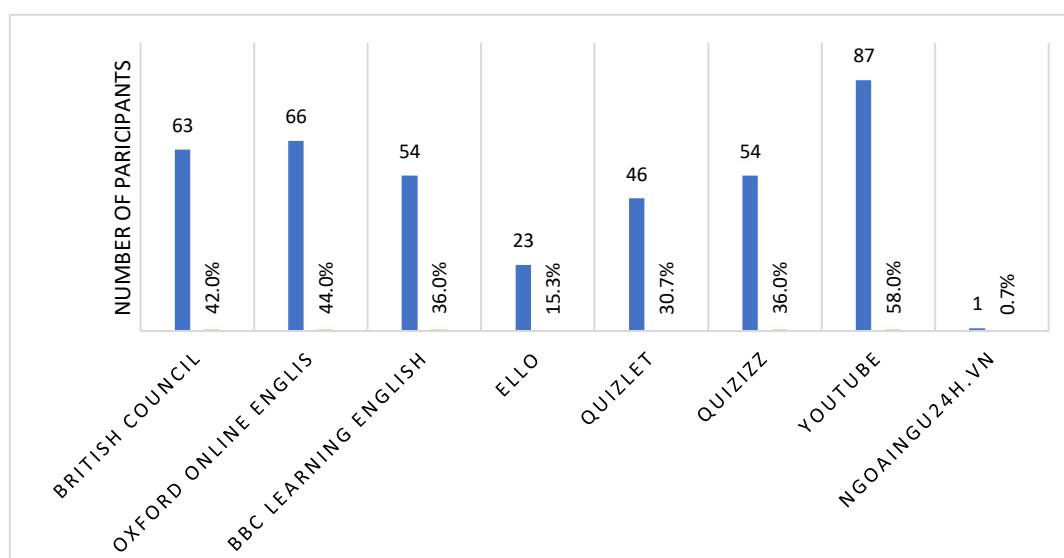
Websites

Fig.3. Websites used by EFL sophomores

YouTube emerged as the most popular website, and 58% of the participants used it for its diverse video content that aids listening comprehension and cultural exposure. Bravo et al. (2011) similarly found that videos significantly enhance learning motivation. Other websites like Oxford Online English (44%) and British Council (42%) were also widely used due to their structured lessons and exercises that target specific language skills. Websites such as Quizizz and BBC Learning English were used by a smaller portion of students, aligning with the findings of Perez Paredes et al. (2018), who highlighted that web-based platforms offer valuable resources for autonomous learning, especially in skills like reading and writing.

How EFL students have implemented MALL in their autonomous EFL learning

Time spent on autonomous English learning through MALL

- less than 10 minutes
- less than 20 minutes
- less than 30 minutes
- less than 40 minutes
- less than 50 minutes
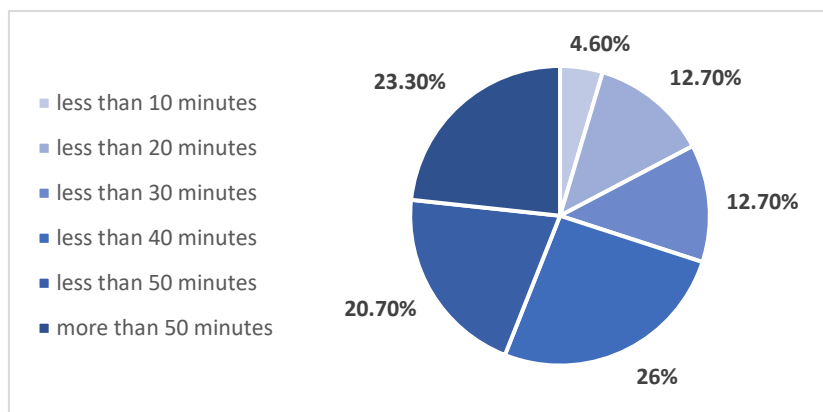- more than 50 minutes

4.60% 12.70% 12.70% 26% 20.70% 23.30%

Fig.5. Time spent on daily autonomous English learning via MALL

From the results of the chart above, 26% of sophomores who participated in the survey spent more than 30 minutes a day studying English on their own. Also, one-fifth of them spent 41-50 minutes learning the language, and nearly one-fourth of them spent more than 50 minutes on this activity (23.3%). However, there are 30% of students allocate less than 30 minutes a day to practicing English skills and knowledge. Although students could study through MALL many times without any time and space constraints, it was realized that time allocation for this activity, in general, could be more adequate, especially for students majoring in the English language. Besides the universal and portable feature of MALL, which allows learners to autonomously use mobile devices for any subject at any time, anywhere (Zaki & Yunus, 2015), students should be more motivated to learn by themselves daily in a longer time span via MALL to develop their language proficiency.
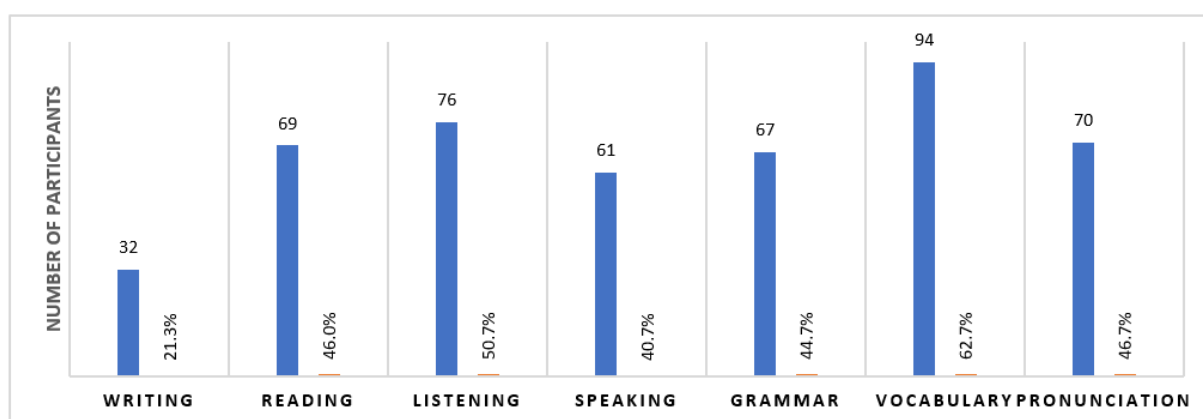
Knowledge and skill most developed through MALL

Fig.4. The English knowledge and skills EFL sophomores tried to develop via MALL

Figure 4.4 demonstrates how EFL sophomores applied MALL to improve their English skills and knowledge. Overall, it can be found that the majority of students (62.7%) used MALL to improve their vocabulary, with mobile applications offering interactive features, such as

flashcards, that support vocabulary retention. This is supported by Davie and Hilber (2015), who found that applications like Quizlet were highly effective in vocabulary learning. Besides, MALL was found to be applied in improving listening skills by half of the participants (50.7%), who accessed podcasts and videos, providing authentic listening material that is easily accessible through MALL platforms. This supports the findings of Alqahtani (2014), who noted that listening comprehension is greatly enhanced by MALL tools that offer contextualized, real-world audio and video resources. Therefore, learners can practice listening easily anywhere and anytime to improve listening skills via MALL implementation.

In addition, nearly half of the participants also used MALL to develop reading (46%), grammar (44.7%), and speaking skills (40.7%). MALL applications such as ELSA Speak and mobile platforms like YouTube helped learners practice speaking and refine their pronunciation, aligning with Kholis (2021), who emphasized the role of MALL in improving speaking through real-time feedback. However, only 20% of students used MALL for writing, as most mobile platforms focus on basic error correction rather than complex writing skills. This is in line with Moura et al. (2020), who found that while MALL enhances basic language skills, writing requires more comprehensive feedback than mobile platforms typically provide.

Students' perceptions of the application of MALL in their autonomous EFL learning

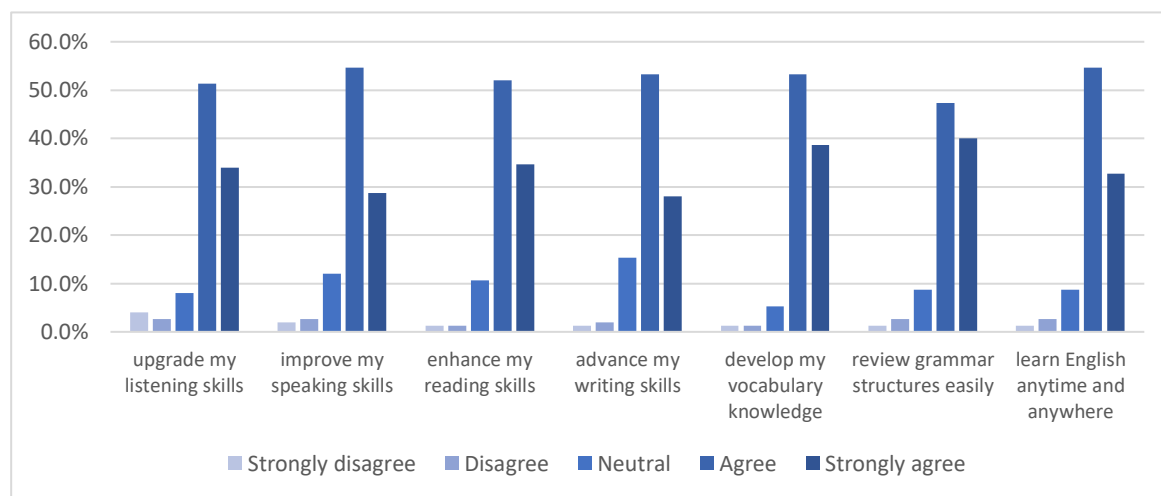Benefits of implementing MALL in EFL learning

Fig. 6. Benefits of applying MALL in EFL learning

Figure 6 shows the benefits MALL has brought to the sophomores as they apply this method in their self-study of English. Overall, it could be seen that most students participating in the survey agree and strongly agree on the benefits of MALL in improving the four basic skills of listening, speaking, reading, and writing with 85%, 83%, 87%, and 81%, respectively. In addition, most of the participants found that MALL helped them develop a good vocabulary (92%) and review the grammar structures efficiently (87%). Additionally, it was acknowledged by most students (87%) that MALL allows them to learn English anytime, anywhere. In short, the results shown in this chart were similar to those of Mozes's (2019) study, which confirmed that implementing MALL in EFL learning brought many benefits and facilitated language learning.
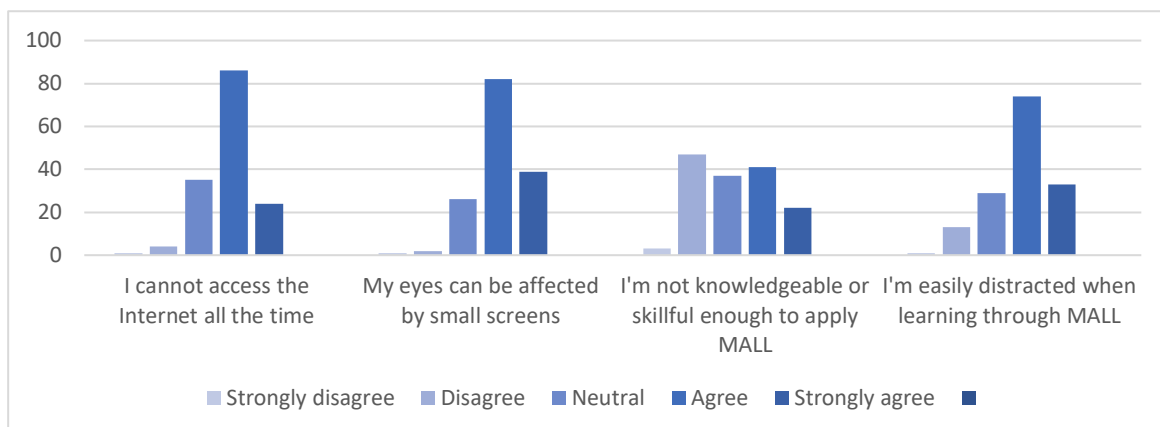
Challenges of implementing MALL in EFL learning

Fig.7. Challenges of MALL implementation in EFL learning

This chart demonstrates the difficulties second-year EFL students face when applying MALL to learn English by themselves. Overall, most of the students agreed and strongly agreed that they faced similar problems as follows: they could not access the Internet all the time (73%), it could affect the eyes because of the small screens (80%), and it made learners easily distracted during the learning process (74%). These issues were also mentioned in the study by Kassem (2018). However, when discussing the level of difficulty when applying MALL, there were varied opinions on this matter. While 32% of the students denied this was hard to implement, 44% confirmed MALL was not easy to apply, and 24% of the participants shared a neutral opinion. These differences indicated that the second-year students had various levels of knowledge and skills to apply MALL in their self-study activities. A remarkable number of students still needed to be proficient in technology and learning methods, which could be viewed as disadvantages that hindered their self-study through MALL. In summary, although MALL offered many benefits for students learning English on their own, many students revealed they were not ready for this implementation without any support from their instructors, and they still faced obstacles in this autonomous learning process.

EFL sophomores' general perception of MALL in autonomous English learning
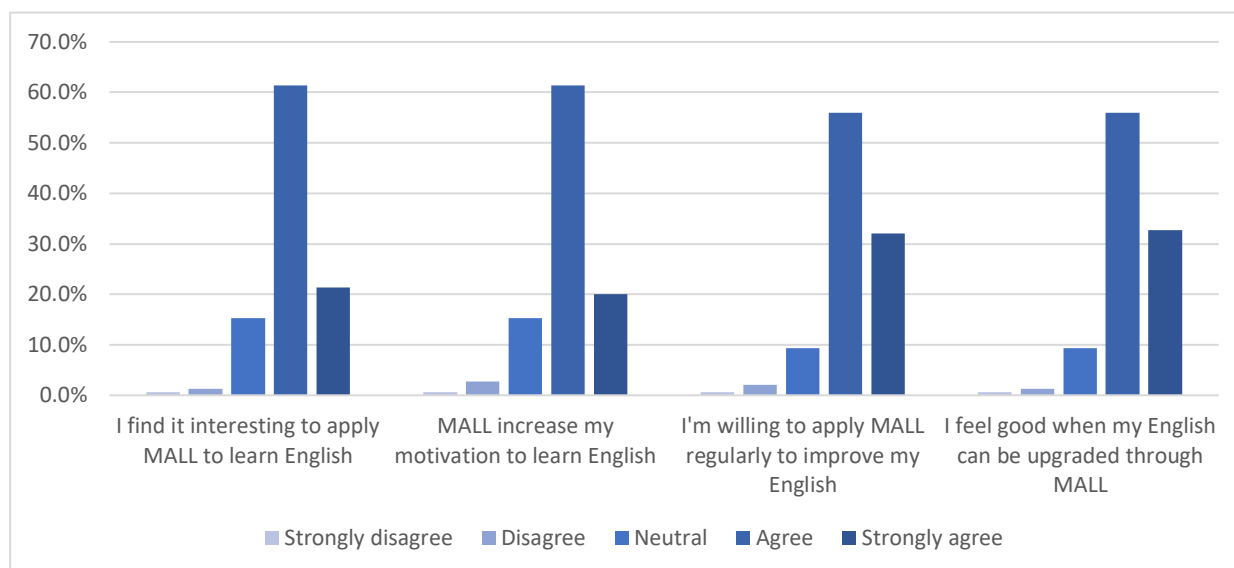

Fig.8. EFL sophomores' perception of MALL in autonomous English learning

Students' perception of the application of MALL in their self-study of English is shown in Figure 7. In general, students had a positive attitude towards their English self-study through MALL. A high percentage of students agreed upon all aspects. Eighty-one percent of the students found applying MALL in learning English interesting, and the same proportion stated that MALL increased their motivation to learn English. Besides, 88% of the participants expressed their willingness to sign up for MALL regularly to improve their English and shared a sense of satisfaction when they could improve their English with MALL. These findings align with the study by Mozes (2019), who asserted that MALL had motivated learners to develop their language acquisition abilities. In short, MALL motivated learners and brought forth many interesting benefits. However, effective learning through MALL heavily relies on learners' autonomy.

In conclusion, this study's findings have confirmed that MALL is a valuable tool for autonomous EFL learning, supporting vocabulary acquisition, listening comprehension, and pronunciation. However, its effectiveness depends on students' time management and their ability to overcome technological challenges. These results align with previous studies, which also found that MALL enhances language learning while posing challenges related to technology and distractions.

Conclusion

Based on the collected data, the majority of students have applied MALL in their autonomous learning, with smartphones being the most commonly used devices. These devices offer convenient access to a variety of mobile applications such as Duolingo, Cake, and ELSA Speak, which students frequently use. Websites like YouTube also serve as valuable platforms for language learning. MALL has been effective in improving students' language proficiency, particularly in vocabulary acquisition and listening skills. Vocabulary applications, in particular,

have been instrumental in helping students expand their vocabulary through user-friendly interfaces. In terms of learner engagement, many students reported positive experiences with MALL, indicating that it enhances motivation and encourages regular use. The findings suggest that MALL contributes to the development of essential English skills, although it presents some challenges, such as distractions and technological limitations.

However, this study has some limitations. First, it primarily focused on a single group of second-year English majors at one university, limiting the generalizability of the findings to other educational settings or age groups. Additionally, the study relied on self-reported data, which may introduce bias in terms of students' perceived effectiveness of MALL. The study should have also investigated the long-term impact of MALL on language proficiency or compared its effectiveness with traditional learning methods.

For future research, broader studies across multiple institutions and diverse learner groups would provide more generalizable insights into the use of MALL. Investigating the long-term effects of MALL on various language skills, especially writing, which was underutilized in this study, could also offer a deeper understanding of its effectiveness. Furthermore, future research could explore the integration of MALL into blended learning and flipped classroom environments to evaluate its role in complementing traditional teaching methods and enhancing overall language proficiency.

The findings suggest that integrating MALL into both teacher-led instruction and self-study could enhance language learning outcomes. Teachers could consider incorporating more mobile resources and providing guidance on effectively selecting and using MALL tools. Further research is recommended to explore the application of MALL in different learning contexts, including blended learning and flipped classrooms, assess its effectiveness across a broader range of learners, and evaluate its role in complementing traditional teaching methods and enhancing overall language proficiency.

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