



The Role of Mobile Language Learning Applications Duolingo in Enhancing English Language Proficiency: A Study on Hospitality Students

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Abstrak

Pesatnya perkembangan teknologi telah mendorong meningkatnya variasi aplikasi pendidikan yang semakin menarik dan inovatif sebagai sarana pembelajaran berbasis online khususnya untuk pembelajaran bahasa Inggris, salah satu aplikasi yang diminati siswa adalah aplikasi Duolingo, yang dimana aplikasi duo linggo menerapkan kemudahan, kenyamanan, dan efektivitas bagi siswa untuk belajar bahasa Inggris. Beberapa penelitian telah dilakukan untuk mengetahui dampak aplikasi Duolingo terhadap sistem pendidikan. Oleh karena hal tersebut, para peneliti tertarik untuk mengetahui bagaimana persepsi siswa tentang penggunaan aplikasi Duolingo dalam proses belajar bahasa Inggris. Penelitian ini menggunakan metode deskriptif kualitatif dengan melibatkan mahasiswa di IPB International sebagai partisipan. Untuk mengumpulkan data peneliti menggunakan teks tertulis dari transkrip dan dokumentasi wawancara, ada tiga langkah dalam menganalisis data penelitian ini, langkah pertama adalah proses pemilihan, konsentrasi, perhatian, simplifikasi, abstraksi, dan transformasi data mentah yang timbul dari hasil wawancara, dan dokumentasi proses belajar siswa menggunakan Duolingo. Hasil penelitian ini menunjukkan bahwa sebagian besar siswa lebih suka belajar bahasa Inggris menggunakan aplikasi Duolingo sebagai media pembelajaran Bahasa asing khususnya Bahasa Inggris. Hasil penelitian ini memberikan persepsi dan hasil yang positif terhadap aplikasi Duolingo dalam meningkatkan kemampuan mahasiswa dalam belajar Bahasa Inggris.

Kata Kunci: aplikasi duolingo, pembelajaran daring, persepsi siswa.

Abstract

The rapid development of technology has encouraged the increasing variety of educational applications that are increasingly interesting and innovative as a means of online-based learning, especially for English language learning. One of the applications that students are interested in is the Duolingo application, which applies ease, comfort, and effectiveness to students learning English. Several studies have been conducted to determine the impact of the Duolingo app on the education system. Therefore, the researchers were interested in knowing how students perceive the use of the Duolingo application in the process of learning English. This research uses a qualitative descriptive method by involving students at IPB International as participants. To collect researcher data using written text from interview transcripts and documentation, there are three steps in analyzing this research data; the first step is the process of selection, concentration, attention, simplification, abstraction, and transformation of raw data arising from interview results, and documentation of student learning process using Duolingo. The results of this study show that most students prefer to learn English using the Duolingo application as a Foreign language learning media, especially English; the results of this study provide positive perceptions and results of the Duolingo application in improving students' ability to learn English.

Keywords: duolingo application, online learning, students' perceptions

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DOI : <https://doi.org/10.31004/edukatif.v6i3.6886>

ISSN 2656-8063 (Media Cetak)

ISSN 2656-8071 (Media Online)

INTRODUCTION

Technology is now generally accepted as an essential educational and adjunct tool in various teaching and learning environments. Given a clear focus on needs assessment, creation/adaptation of materials, and courses, technology has long played an important role in the teaching and learning process. Technology also plays an important role in the development of education today, one of which is the development of various educational applications that help students develop English language skills.

There are four language skills, according to Richards & Renandya (2022) (in Gumartifa & Syahri, 2021) which are crucial components of language proficiency because they affect how well speakers, listeners, readers, and writers communicate. Learning English is essential since it is used in practically every industry in the globalized world, including commercial organizations, tourism, politics, science, and education. Learners consequently have to be able to speak English. However, there are difficulties when learning English as a foreign language. The university level is another setting for this issue. Students may encounter strange terms that make it challenging for them to master the language.

Learning English as a foreign language in Indonesia is quite tricky. In order to help students become more interested in learning English, they could use technology in English language teaching and learning (Nenotek & Benu, 2022). Technology use not in classrooms only is not limited because technology may be used for various functions. As a result, the lesson will no longer be uninteresting. Furthermore, technology may make studying more accessible for students, especially when it comes to learning English. Many computer and smartphone applications have been developed for the benefit of learning English; one of them is "Duolingo," which is a smartphone application developed by the online language-learning program Duolingo.

The company aims to create the best education possible and make it accessible to everyone. In the words of Jašková (2014), "Duolingo is seen as a future in learning languages and global communication." One of the language-learning programs that might help learners with autonomous study is Duolingo. Ahmed (2016) also argues that Duolingo's learning system is very motivational. It combines gamification techniques to develop incentives for users to continue learning. The user might complete various exercises, such as short-answer questions, reading and speaking comprehension, and written translation. This application is designed to help users learn foreign languages, especially English.

The author has conducted two previous studies on the effectiveness of applications on smartphones for English language learning. The first study examined into how students thought about using smartphones to study the English language, and it was conducted out (Barakati, 2013). His research attempted to determine and evaluate how using a smartphone affected English language learning. Fujimoto (2012) conducted the second research. It investigates into how Australian students perceive mobile language learning. The present research aims to find out how students perceive using smartphones for language learning or for personal, educational, and language-learning aims in everyday activities.

According to the description above, in addition to the differences in the research object, the two studies only look at the impact of mobile phone use in general on students' English acquisition. This is not consistent with the author's current research. In the present research, the author concentrates on a more specialized topic, namely applications available on mobile phones and desktops and laptops. The researcher aims to investigate students' perceptions of Duolingo as a way for learning English, especially among students in the hospitality students.

The findings of this study are expected to provide a complete understanding of students' attitudes concerning the use of Duolingo in developing their English skills. Studying this research is expected to assist determine how to utilize Duolingo in a understanding this research is supposed to help determine how to effectively use Duolingo in a learning setting, encouraging students to have a positive attitude toward using

Duolingo as a foreign language learning tool and application. The researcher saw that the students were interested in using this application in their learning. Therefore, the researcher wants to find out the students' perceptions of using the Duolingo application and selects the topic of "Hospitality students' perception of using Duolingo as a media in learning English. This study also focuses on finding out and describing students' perceptions of using the Duolingo app in learning vocabulary with their experience.

The dictionary describes perception as having the ability to see, hear, or comprehend anything (Hornby, 1995). As a result, perception is a subjective assessment, or to put it another way, the way a person interprets and perceives the world. Positive perception results from an individual's contentment with a certain thing that serves as their source perception, as well as from their unique knowledge and experience with the perceived object (Robbins & Judge, 2013). Negative perception might stem from an individual's displeasure with an object, ignorance, or lack of experience with it. The most prevalent mobile devices for m-learning are mobile devices. The expression "portable learning," also known as "M-learning," refers to learning that takes place in a setting that is not defined for the student or when the learner makes use of adaptable innovation.

The main component of adaptable learning is the use of time-efficient learning programs that do not depend on a set schedule or location, as stated in connection (Noor & Abdullah, 2015). Getting what you want, where you want, and when you want is, therefore, the goal of M-learning. According to the most recent research, experts researching mobile learning have been looking into a variety of topics related to distinct aspects of mobile learning. Common features of mobile learning include usability, collaboration, context, control, connectivity, mobility, content, blending, technical support, and cost (Imtinan et al., 2013). Duolingo is one of the mobile applications for learning English.

Through an application called Duolingo, which is used for technology, learners can learn English while playing games. In 2012, Hacker and Von Ahn launched Duolingo, an educational website and smartphone app for language learning. It offers 68 different language programs in 28 various languages. The Duolingo application makes it easier for teachers to teach learners four competencies, according to information on the Duolingo website. The Duolingo learning activities integrate the four skills through questions, short texts for reading aloud, and transcribed content. In order to assess the student's ability to communicate verbally, educators have to record their pronunciation.

With the many resources offered by Duolingo, users may pick up a new language quickly and efficiently. These elements include a daily word list, the opportunity to exchange knowledge through conversations with other users, a Duolingo archive, and participation for more experienced users. Furthermore, according to White (2014), Duolingo is an online language-learning platform that allows users to interact with each other in a number of languages. Jašková (2014) states that Duolingo is a free application with 200 million users that allows for use on a number of devices, such as desktops, smartphones, and other gadgets. It offers courses in more than 23 different languages. Duolingo may be accessed via multiple platforms.

The goal of Duolingo is to help learners comprehend and utilize a language. Users will be able to assess whether Duolingo prioritizes vocabulary mastery in the platform's learning section. Because of this, Duolingo could help students improve their vocabulary, and teachers have already used it to help students learn vocabulary via memorization. Duolingo might prove helpful when assisting students learn a new language through games, keeping them from getting bored while learning. Several researchers have generated some equivalent results using Duolingo for English learning and teaching. According to Krashen (2014), Duolingo is an online tool that leads users through a range of tasks that are mostly translation-related. The application's three main features are transcription, prediction text, and spelling checking.

METHOD

A descriptive qualitative method is a research approach that focuses on describing and interpreting phenomena in detail without necessarily seeking to establish causal relationships or test hypotheses. This method is often used to explore and understand the complexities of human experiences, perceptions, behaviors, and interactions within a specific context. A case study approach was employed to examine the impact of mobile language learning applications on English proficiency among hospitality management students. Participants were selected from two different classes within the hospitality management program at a university. Data collection methods included surveys to gather quantitative data on usage patterns and perceptions of mobile language learning applications and interviews to obtain qualitative insights into students' experiences and attitudes. Academic performance evaluations were also conducted to assess the effectiveness of mobile language learning applications on English language proficiency.

RESULTS AND DISCUSSION

All the participants have been using Duolingo for a month, and five of them have finished Duolingo up to the last topic; they all also have Duolingo accounts on their phones or laptops. Within seven days, students take an average of two to six lessons a day. Students start lessons at Duolingo from the basic level after they take the placement test from Duolingo. Current mobile learning literature shows that mobile learning researchers have been experimenting with a number of mobile learning characteristics. After the rigorous process of scanning and reviewing the literature, the researchers have concluded that usability, collaboration, context, control, connectivity, mobility, content, blending, technical support, and cost are the common mobile learning characteristics. It appears from the literature that these characteristics have been incorporated and researched in most of the mobile learning studies dealing with the subject so far. The following subsections discuss each of these common mobile learning characteristics in detail. The researchers examined the results based on the general characteristics of mobile learning proposed by Imtinan et al (2013) as follows:

Students' Perception of the Duolingo's Usability

Usability refers to the ease with which mobile devices are appropriate for learning, which takes consideration variables which include the size of the screen, battery life, size, weight, memories, speed of processing, appropriate applications, and the user interface. Seong (2006) shows a usability guidelines framework for designing mobile learning portals which focuses on analysing the learner's usage skills, human-mobile communication, and interface design as main categories to develop usability guidelines for designing mobile learning sites that included mobile learning content and apps. Regarding the students' perceptions of Duolingo's usability, the first six participants noted that Duolingo can be utilized with a variety of background experiences; the student rapidly began learning.

The other participants also point out that Duolingo can be attached to any compatible mobile device, allowing them to learn from anywhere without being interrupted by advertisements. Then, participants stated that Duolingo was simple to use regardless of the simple instructions provided. Hence, it doesn't seem confusing. Furthermore, Duolingo is comprehensible because it requires fewer steps for completing the assigned task, and many learners thought it had an attractive layout. All of the participants agree that the design is wonderful sophisticated, and vibrant. Another student mentioned that the illustration on Duolingo is vibrant and appealing. Even though the image is not a realistic representation, it is still simple to understand. Usability relates to the ease with which mobile devices can be used for learning, taking into account the size of the screen, rechargeable battery weight, amount of memory, processing speed, compatible uses, and the user experience. Based on the interview previously mentioned, the students expressed their opinions on the

usability of Duolingo. Duolingo is regarded well by students as being easy to use, requiring fewer steps for completing the assignment, having an appealing design, and simplifying how it displays.

Students' Perception Toward the Duolingo's Collaboration

Collaboration displays the level of interaction and involvement between the learner, the teacher, and other students (Ryu & Parsons, 2009). A number of studies conducted around the world have shown that mobile learning could render educational procedures more casual and collaborative (Mifsud, 2002). The term 'collaborative' refers to two or more learners working together in a group to achieve a common objective. Each member of the group are obligated to acknowledge how they contribute to the overall. Collaborative learning is based on social interaction to generate knowledge (Supartini et al., 2024).

Students experience Duolingo can facilitate peer-to-peer learning. The first student suggested that we add friends to Duolingo and compete with them. The rest of the learners assumed that Duolingo offered a discussion forum. They can discuss the issue with another participant by clicking the call out icon. The discussion threaded needs to exist because Duolingo's explanation is occasionally not clear. Thus, in accordance with learners, Duolingo provides peer-to-peer learning; however, it lacks support for classroom settings.

Students' Perception of Duolingo's Context

Context refers to the learner's physical environment or where studying occurred (Frohberg et al., 2009). Mobile educational technology offers learners with a variety of situation in which to learn and experience in real-life situations. Learners can interact with the surroundings and create connections between objects using mobile device location awareness, such as during museum tours; one example is the Tate Modern The multimedia format tour experiment and mobile learner project, in which learners encountered contextualized educational experiences through mobile devices during the tour to deliver details regarding the objects on display (Proctor & Burton, 2004). The learner's context is a crucial idea in mobile educational technology since mobile devices allow the learner to access, get around, and make sense of information whenever and wherever it is required.

The student assumes that if the learner has previously completed all of the vocabulary in Duolingo, they will be capable easily answer issues with the same subject matter or which are related to the vocabulary in Duolingo. The other students believed that by memorizing or mastering specific steps in Duolingo, the learner might have a simple conversation in English and establish a strong foundation on which to continue English learning and practice. Mobile educational technology provides learners with a range of situations in which they can acquire knowledge and experiment in situations from the real world. The people who participated had simple chats because Duolingo presented them with simple language from everyday life. Furthermore, more than half of the students believed that the Duolingo topic was relevant to their everyday activities.

Students' Perception Toward the Duolingo's Control

In mobile learning environments, it is critical to determine what degree of autonomy a learner ought to be for them to achieve most effective educational outcomes; thus, the level of control should be addressed while creating mobile environments for learning. All participants agreed that Duolingo could potentially assist them learn English more effectively. The learners state that that Duolingo has provided numerous activities that have attracted their attention. Five out of six students agree that the educational prompt is a useful instrument towards maintaining them practicing throughout the day. In addition, they can compete against other users on the leader board. The preservation of their position on the leader board is difficult for them.

The reward system in Duolingo is motivational, in relation to the learners, throughout the time when you complete specific assignments, you are offered a Lingot reward, which you might use on purchasing costumes for the Duolingo mascot or a shortcut to make learning easier for you. All of the learners agreed that Duolingo would help them enhance their language comprehension and skills. The young people additionally addressed how Duolingo could potentially assist them improve their language skills. Several participants commented that their grammar knowledge had improved due to the could learn grammar subconsciously by accomplishing every assignment and examining the sentence structure. It illustrates how Duolingo encourages students to continue learning by motivating them through interaction and by offering solutions to each difficulties.

Students' Perception Toward the Duolingo's Connectivity, Mobility, and Cost

Connectivity, as a mobile quality for learning, applies to how conveniently a learner could utilize the required data or educational materials on a mobile device (Tiara et al., 2021). Access to network technologies provide as a connection between participants, mobile devices, and educational materials. Then mobility is one of the most important concepts in the design of mobile educational systems and environments since, as noted (Sharples, 2005), mobility is a shared attribute of mobile devices and learning ideas; learners acquire knowledge in different places and at different times when mobile devices facilitate their ability to learn anytime, anywhere (Shraim & Crompton, 2015). Dyson et al. (2009) categorized the cost of educational mobile devices into four main categories. Education providers and students contribute expenditures in many different kinds of areas, including utilize charges, mobile device expenses, mobile application costs, and network charges.

According to the participants' perceptions, connectivity relates to how efficiently a learner could access the required data or learning material on a mobile device; Duolingo can be utilized when there is an internet or WIFI connection. Furthermore, the terms mobility, flexibility, and portability have been used interchangeably. Duolingo is a mobile application that is able to used and transferred anywhere since it is installed on a smartphone. Everyone who participated claimed that Duolingo is simple having with them because it is installed on their mobile devices, allowing them to practice their languages at any time they want. As a result, students believe Duolingo has distinctive characteristics between educational apps, that mobile learning planning and implementation are significant for institutions, and that learners might have to shell out for mobile data usage. The application in question offers an entirely free service; no payment is required to download it. It doesn't require an Internet connectivity.

Students' Perception toward the Duolingo's Blending

Blended learning is a widely used learning approach that integrates the advantages of multiple areas of learning, particularly mobile learning, e-learning, face-to-face learning, and contextual learning (Agbi, 2021). Blended learning is defined as the combination of several methods of instruction with appropriate digital and actual educational components. Duolingo combines a lot methods of instruction. The courses cover translation, listening, writing, speaking, and pronunciation. However, the student claims that the major instruction is to translate words or sentences from Indonesia into English, or vice versa. The learners respond by providing or selecting the appropriate words from the phrase library. If the learners were apprehensive about the meaning of a word, they can click on it in specific questions, and an explanation of the text will on display. The first student thought it was like a flashcard for vocabulary development.

Duolingo combines learning with a range of learning methodologies based on learners' perceptions. Personally, I think this is successful because Duolingo enhances our learning through a variety of methods that range including visual, audio, and writing. When we complete an instruction, Duolingo encourages us

how far we've progressed from our daily goals using XP points, which indirectly encourages us to keep practicing accomplishing our goals. Based on the statement and the results of the above-mentioned Duolingo assessment, but it has been determined that students have positive opinions of several Duolingo approaches to learning, particularly listening to, speaking, pronouncing, and writing or typing.

Students' Perception of the Duolingo's Content

Mobile learning content can be made specifically by providers of education based on student and institutional preferences; nevertheless, provided content (also known as mobile learning applications or apps, as activities are transformed to apps by software developers) is available on the market (Imtinan et al., 2013). The development of mobile learning content is determined by the types of learning activities necessary for a particular learning circumstance. The research offers a variety of mobile educational activities, including online access to information, transferring data, picture capture, recording and playing audio and video files, online sharing these kinds of files, and online collaborative creation of material. Duolingo's learning concept has similarities to the concept of a games; the learner must successfully complete levels in addition to receive a reward, and the points collected could be rated on the scoreboard. The third and fifth learners state that Duolingo's gamification concept makes learning appear straightforward enjoyment, and motivating. The learners agree that Duolingo's exercises are bite-sized. Only one activity takes the learner only a few minutes for them to finish. Bite-sized content might fulfill the learner since it is enjoyable and easy to digest. The opinions of the learners show that the information on Duolingo is appropriate for learning through mobile devices.

Students' Perception Toward the Duolingo's Technical Support

Making mobile learning a seamless learning experience involves technical support for educators as well as learners. According to Chen and Li (2010), one of the most significant barriers to teachers adopting mobile learning is a lack of suitable technical and administrative support. Most of the students have never encountered severe technological difficulties. The second student stated that if there are any technical issues, learners can consult the FAQ. The FAQ is a list of questions and answers regarding an issue in particular. The other attendees weren't experiencing significant problems with it. The microphone is able to switched on or off depending on the situation, especially when you are unable to speak into it in a crowd. However, it is differently when learners utilize Duolingo's web version. The learner must utilize Google Chrome as the default web browser. This happened since the microphone is accessible only in Google Chrome. The interview previously showed that Duolingo provides adequate technological help to learners.

According to preliminary research, the majority of hospitality management learners apply mobile language learning applications to complement their knowledge of English. These tools' flexibility and accessibility are ideal for the busy schedules and dynamic learning environments that characterize hospitality education. Respondents reported positive interactions with mobile language learning applications' interactive features and gamification elements, which improved their motivation and interest in language learning. However, difficulties to implementation included technical difficulties, limited offline access, and concerns about the quality of the content. Further data analysis is being conducted to gain a thorough knowledge of the impact of mobile language learning programs on English competence among hotel management students.

CONCLUSION

In conclusion, mobile language learning applications have the potential to enhance English proficiency among hospitality management students significantly. Learners evaluate Duolingo effectively in terms of

accessibility, context, control, connectivity, accessibility, blending, content, technical support, and costs. Duolingo is an effective tool for learning English due to the offers numerous advantages to facilitate the learning process. This program has been easy to use and encourages users to improve their English. They also felt at ease and appreciated learning English with Duolingo. Furthermore, the majority of learners thought that Duolingo is effective for learning basic English. However, there were some limitations to using Duolingo in the learning process, including difficult expressions, a lack of grammar explanations, and limitations to be used in learning environments. Duolingo has been showed to be one of the mobile learning media that educates English from the ground up, presents the information in engaging and entertaining methods that vary and encourages self-learning. However, Duolingo cannot be applied as an independently language acquisition instruments.

Learners might be looking for out and incorporate appropriate supplementary material to maximize learning a new language. The researcher suggests that other researchers implement Duolingo in their students' teaching and learning activities due to its numerous advantages. Their flexibility, accessibility, and engaging features make them valuable tools for language acquisition in specialized educational settings. However, addressing challenges, such as technical issues and content quality, is essential to maximize their effectiveness. This study provides valuable insights for educators, developers, and stakeholders in the hospitality industry to optimize the integration of mobile language learning applications into language learning curricula, ultimately contributing to the professional development and success of hospitality management students in an increasingly globalized world.

REFERENCES

- Agbi, A. (2021). *Development of an Instructional Model Based on Mobileblended and Inquiry-Based Learning to Enhance Critical Thinking Abilities for Business Education Undergraduate Students in Nigeria*. Naresuan University.
- Ahmed, H. B. E. (2016). Duolingo as a Bilingual Learning App: a Case Study Heba Bahjet Essa Ahmed College of Humanities, Prince Sultan University Riyadh, Saudi Arabia. *Arab World English Journal (AWEJ)*, 7(2), 255–267.
- Barakati, D. P. (2013). Dampak Penggunaan Smartphone dalam Pembelajaran Bahasa Inggris (Persepsi Mahasiswa). *Jurnal Elektronik Fakultas Sastra Universitas Sam Ratulangi*, 1(1), 1–13.
- Benu, N. N., Iye, R., Snae, A., & Kamengko, D. F. (2023). Penggunaan Teknologi dalam Pembelajaran Online (Studi Kasus Pada Dua Sekolah Negeri di Kota Kupang Pada Masa Pandemi Covid-19). *Sosiologis: Kajian Sosiologi Klasik, Modern Dan Kontemporer*, 1(2), 13–21.
- Chen, C.-M., & Li, Y.-L. (2010). Personalised Context-Aware Ubiquitous Learning System for Supporting Effective English Vocabulary Learning. *Interactive Learning Environments*, 18(4), 341–364.
- Dyson, L. E., Raban, R., Litchfield, A., & Lawrence, E. (2009). Addressing the Cost Barriers to Mobile Learning in Higher Education. *International Journal of Mobile Learning and Organisation*, 3(4), 381–398.
- Frohberg, D., Göth, C., & Schwabe, G. (2009). Mobile Learning Projects – a Critical Analysis of the State of the Art. *ZORA Zurich Open Repository and Archive*, 25(4), 307–331.
- Fujimoto, C. (2012). Perceptions of Mobile Language Learning in Australia : How Ready Are Learners to Study On the Move ? *The JALT CALL Journal*, 8(3), 165–195.
- Gumartifa, A., & Syahri, I. (2021). English Speaking Anxiety in Language Learning Classroom. *English Language in Focus (ELIF)*, 3(2), 99–108.

- 2797 *The Role of Mobile Language Learning Applications Duolingo in Enhancing English Language Proficiency: A Study on Hospitality Students* - Ni Made Sri Raahayu, Ida Ayu Gayatri Kesumayathi, Ni Luh Supartini
DOI : <https://doi.org/10.31004/edukatif.v6i3.6886>
- Harrington, R. A., Stone, G. W., McNulty, S., White, H. D., Sc, D., Lincoff, A. M., Gibson, C. M., Pollack, C. V., Montalescot, G., Ph, D., Mahaffey, K. W., Kleiman, N. S., Goodman, S. G., Parikh, K. H., Skerjanec, S., Pharm, D., & Bhatt, D. L. (2009). Platelet Inhibition with Cangrelor in Patients Undergoing PCI. *The New England Journal of Medicine*, 361(24), 2318–2329.
- Hornby, A. S. (1995). *Oxford Advanced Learner's Dictionary of Current English*. Oxford : Oxford University Press.
- Imtinan, U., Chang, V., & Issa, T. (2013). Common Mobile Learning Characteristics-An Analysis of Mobile Learning Models and Frameworks. *Proceedings Of The International Conference Mobile Learning 2013*, 3–11.
- Jašková, B. V. (2014). *Duolingo As a New Language-Learning Website and its Contribution To E-Learning Education*. Masaryk University.
- Krashen, S. (2014). Does Duolingo “Trump” University-Level Language Learning? *International Journal of Foreign Language Teaching*, 9(1), 13–15.
- Mifsud, L. (2002). Alternative Learning Arenas – Pedagogical Challenges to Mobile Learning Technology in Education. *Proceedings. IEEE International Workshop on Wireless and Mobile Technologies in Education*, 112–116.
- Nenotek, S. A., & Benu, N. N. (2022). The Use of Technology in Teaching and Learning (Case Study in Two State Schools in Kupang , Indonesia during the COVID-19 Pandemic). *Randwick International of Education and Linguistics Science Journal*, 3(2), 249–255.
- Noor, M. A. F. B. M., & Abdullah, S. (2015). The Usage of E-Books in Higher Education Learning. *Proceeding: 7th International Seminar on Regional Education*, 3, 1311–1315.
- Proctor, N., & Burton, J. (2004). Tate Modern Multimedia Tour Pilots 2002-2003. In *Learning with Mobile Devices a Book of Papers Edited by Jill Attewell and Carol Savill-Smith Research and Development* (pp. 127–130).
- Richards, J. C., & Renandya, W. A. (2022). *Methodology in Language Teaching an Anthology of Current Practice*. Cambridge University Press. <https://doi.org/10.13140/RG.2.2.36344.72962>
- Robbins, S. P., & Judge, T. A. (2013). *Organizational Behavior* (15th ed.). New Jersey : Prentice-Hall Inc.
- Ryu, H., & Parsons, D. (2009). Designing Learning Activities with Mobile Technologies. In *Innovative Mobile Learning: Techniques and Technologies* (pp. 1–20).
- Seong, D. S. K. (2006). Usability Guidelines for Designing Mobile Learning Portals. *Proceedings of the 3rd International Conference on Mobile Technology, Applications & Systems*, 25-es.
- Sharples, M. (2005). *Learning As Conversation: Transforming Education in the Mobile Age*. 1–9.
- Shraim, K., & Crompton, H. (2015). Perceptions of Using Smart Mobile Devices in Higher Education Teaching : A Case Study from Palestine. *Contemporary Educational Technology*, 6(4), 301–318.
- Supartini, N. L., Sudipa, I. N., Pastika, I. W., & Simpen, I. W. (2024). Integrating Storynomics into Language Education to Enhance Speaking Skills of Tourism Students in Bali , Indonesia. *Journal of Curriculum and Teaching*, 13(2), 169–179. <https://doi.org/10.5430/jct.v13n2p169>
- Tiara, A. D., Rahman, M. A., & Handrianto, C. (2021). The Students` Perception About Use of Duolingo Application for Improving English Vocabulary. *International Journal of Education, Information Technology and Others (IJEIT)*, 4(4), 690–701. <https://doi.org/10.5281/zenodo.5775915>
- White, K. D. (2014). Duolingo : all the buzz. *The Linguist*, 53(1), 16–17.