

ТЕОРЕТИКО-МЕТОДОЛОГІЧНІ ЗАСАДИ ВИЩОЇ ТА ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ

UDC 37.015.3:811.111.1:004.942

DOI <https://doi.org/10.52726/as.pedagogy/2024.1.1>

T. P. GOLUB

PhD, Associate Professor,

Associate Professor at the Department of English in Technical Direction № 2, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

E-mail: ukraine.golub@gmail.com

<http://orcid.org/0000-0002-7757-880X>

O. O. KOVALENKO

Lecturer at the Department of English in Technical Direction № 2,

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

E-mail: olga-kovalenko@ukr.net

<https://orcid.org/0000-0003-4781-8611>

O. I. NAZARENKO

Lecturer at the Department of English in Technical Direction № 2,

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

E-mail: nazarenkoits@gmail.com

<https://orcid.org/0000-0002-2560-3815>

L. M. ZHYGZHYTOVA

Lecturer at the Department of English in Technical Direction № 2,

National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine

E-mail: lmzh.its@gmail.com

<https://orcid.org/0000-0003-1814-4881>

THE ROLE OF DUOLINGO IN ENGLISH TEACHING AND LEARNING IN HIGHER EDUCATION

The paper examines Duolingo’s application in higher education as an English teaching tool, analysing its benefits, limitations, and optimal integration strategies. Duolingo’s accessibility, flexibility, and personalized learning approach, facilitated by AI-driven algorithms, offer a tailored educational experience that enhances learner engagement through gamification. Although Duolingo serves as an effective supplemental tool to traditional teaching methods, addressing beginner and intermediate learners’ needs, it falls short in providing authentic language practice and meeting academic English requirements. The incorporation of gamification enhances user engagement and motivation, making it a beneficial supplement to traditional teaching methodologies by offering additional practice. By adopting a balanced integration strategy, educators can leverage Duolingo’s potential to augment language acquisition and contribute to academic success in higher education settings. The paper outlines several advantages of using Duolingo, including the convenience of learning at one’s own pace and location, the tailored learning paths facilitated by AI, and the motivational boost from gamified elements. It also positions Duolingo as a valuable adjunct to conventional academic programs by reinforcing learning. However, it acknowledges certain drawbacks, such as potential deficiencies in authentic language practice, the risk of reduced personal interaction due to technology reliance, and the platform’s limited focus on academic language skills. To counter these issues, the paper recommends a blended learning strategy that combines Duolingo with traditional educational practices, the integration of authentic materials for cultural and linguistic competency, and the inclusion of specialized courses for academic English skills. The paper advocates for Duolingo’s strategic incorporation into higher education’s English teaching frameworks. It suggests that a balanced approach, which combines technological tools with human elements and real-world practice, will amplify Duolingo’s benefits, thereby fostering more effective language learning and academic success.

Key words: Duolingo, higher education, artificial intelligence, English teaching, English learning, gamification, blended learning.

Problem statement. Nowadays, information technologies penetrate into all spheres of human activity and development, including the education system. The modern generation iGen, i.e. internet generation, is young people familiar with gadgets from birth, who prefer to communicate online and draw information not from printed, but from digital Internet sources. All modern students have mobile devices at hand and are willing to spend huge amounts of time on multimedia. The presence of a mobile device is, first of all, access to any information, providing high information capacity, stimulating the cognitive activity of students, increasing the visibility of the lesson, the intensity of its implementation, individualization and differentiation.

Traditional forms of education are no longer so interesting and effective for the current generation. There are many up-to-date educational resources and methods of teaching foreign languages that involve the use of information and communication technologies.

Artificial intelligence (AI) has also become an important technological development related to various industries including education. AI in English language teaching offers many opportunities to develop innovative teaching strategies, personalize learning experiences, and optimize language acquisition. The main goal of learning a foreign language is the formation of communicative competence, which implies learning to communicate and the ability to interact interculturally. Achieving the goal when teaching a foreign language depends on the correctly selected and used teaching aids, which are effective if they use all channels of information. Technical teaching aids, including mobile technologies and artificial intelligence, can help solve this problem.

Analysis of recent research and publications. The question of implementing of artificial intelligence and using different applications in language learning is studied during the last years by many researchers. Thus, Zou, Guan, Shao, and Chen (2023), De La Vall and Araya (2023), Mijwil, Abdulrhman, Abttan, Mijwil, and Alkhazraji (2023) state that artificial intelligence tools, such as AI speaking apps and language learning programs, enhance language acquisition by providing personalized learning experiences, improving learning speed, introducing learners to diverse

cultures, as well as simulating human thinking processes and decision-making, contributing significantly to electronic language teaching and e-learning development.

The application Duolingo has shown significant benefits in language learning for higher education students. Studies have highlighted its positive impact on linguistic competence, vocabulary mastery [Peláez-Sánchez], and English learning support [Permatasari]. Hakimantieq, Suherdi, and Gunawan (2022) state that the gamified nature of Duolingo makes it enjoyable and accessible, contributing to students' positive attitudes towards learning. Additionally, according to Apoko, Dunggio, and Chong (2023) its use has led to improved English reading skills among senior high school students. The accessibility and effectiveness of Duolingo as a free language-learning tool have been particularly beneficial in bridging socioeconomic gaps in university settings. Overall, Duolingo's role in higher education language learning is evident through its ability to enhance linguistic skills, vocabulary acquisition, and overall English proficiency among students.

The purpose of the article. According to the students' surveys, many researchers [Permatasari]; [Nita]; [Li] and others identify Duolingo as an application that is considered to be among the most popular and the most frequently used applications for independent and additional learning of English language. It can be customized and can be used on any device for free. The subject of the article is the study of using the possibilities of Duolingo application in English teaching in higher educational institutions as the mean of promoting the formation, development and improvement of phonetic, lexical and grammatical skills, as well as skills for the development of all types of speech activity and a mean of motivating and optimizing this process.

Main material. The task of Duolingo is to help students assimilate and remember the necessary material, and to help teachers to search for and apply new teaching tools. Using interactive materials, exercises and games, it is possible to work with this application both inside and outside the classroom. Duolingo helps students save time, study more efficiently, and work more effectively in groups. Teachers have the opportunity to adapt educational material to the level of knowledge

of students, create their own modules, modify images, audio recordings, carry out hidden control using the Class Progress function and receive a report on who started or finished work, who needs reminders and help, as well as have statistics on where mistakes are made most often, what to pay attention to and go into more detail.

One of the main goals of modern university education is for students to acquire the skills and abilities of independent learning and self-development, and to improve their skills. Mobile technologies are a kind of comprehensive learning tool that can be used by both teachers and students for independent study of a foreign language and for the purpose of professional improvement. The digital transformation in higher education has led to the integration of innovative language learning platforms and one of them is Duolingo.

Duolingo is a popular language learning platform that offers a wide range of language courses to learners worldwide. Utilizing gamified lessons, interactive exercises, and AI-driven feedback, Duolingo provides a personalized and engaging learning experience tailored to individual learners' needs, preferences, and proficiency levels. With its user-friendly interface, accessible platform, and diverse range of language courses, Duolingo has become a go-to resource for language learners across the globe, including those in higher education institutions.

One of the primary benefits of using Duolingo in English teaching in higher education is its accessibility and flexibility. Duolingo offers a flexible and accessible language learning platform that allows learners to study English anytime, anywhere, at their own pace. This flexibility facilitates autonomous and self-directed learning, accommodating learners with diverse needs, schedules, and learning preferences. As a result, Duolingo serves as a convenient and adaptable tool for English language teaching in higher education, supporting learners in integrating language learning into their busy academic and personal lives.

The tasks in Duolingo are offered in increasing order, from simple to complex. The app is based on a methodology that helps in long-term user retention, as well as a curriculum that meets international standards. Lessons are based on real life goals and situations. Such formats help develop communication skills, which is a key point in

teaching a foreign language and its further use in the intercultural space. According to a study conducted by the City University of New York and the University of North Carolina, an average of 34 hours of studying with the Duolingo app is equivalent to an entire semester of language study at a traditional university [Vesselinov]. The use of Duolingo is especially effective for beginner and intermediate levels of learning [Su]; [Ritonga]; [Irzawati].

Learning on Duolingo is based on the translation method: students receive a short sentence that they need to translate into another language. Other types of tasks involve the students entering a text they have heard in English, choosing the correct grammatical variant, or choosing a word from a picture. Each lesson includes 20 questions aimed at introducing new lexical units in connection with grammatical structures, and practicing words and structures already known to the student. The lesson is considered completed if the student answers the questions without making more than three errors. For each lesson completed, students are awarded from 10 to 13 points, depending on the number of mistakes made. Points are also awarded for repeating previously learned lessons. Lessons are grouped 3–10 into skills, united by a lexical or grammatical topic. The skills are arranged in a tree structure; access to more complex tasks is the successful completion of simpler levels, and, accordingly, the successful acquisition and development of simple skills.

Students can exchange private messages and participate in discussions and debates on mini-forums attached to each proposal. Duolingo does not provide any declarative grammatical information; the student must either deduce the grammatical rule independently from repetitions, or learn it in the above mini-forums, in which both other students and native speakers participate. Anyone can join the discussion. The Duolingo website allows students to track not only their progress, but also the success of their groupmates. This scheme also assumed two-way communication: tracking the results of the teacher supervising the learning process by setting the “Follow” parameter for the teacher, as well as those whom the teacher is following (these lists are available to all participants).

Some time after completing a skill, it must be confirmed, since the life of the acquired skill

decreases. The site uses an adaptive methodology to determine the stability of a skill, based on the time it takes to complete tasks, the number of errors and the use of a built-in dictionary, answers to questions in other skills using the same vocabulary, and regularity of classes. The latter is very important: in the case of irregular training, previously successfully completed skills weaken and need to be confirmed in order to discover new skills. After missing a few days of classes, students may find that they need to repeat exercises on several skills. Similarly, an adaptive technique is used when constructing questions for the following skills: they use vocabulary more intensively from those lessons where the user has made more mistakes in the past.

Duolingo utilizes AI-driven algorithms to provide personalized and adaptive English language learning experiences tailored to individual learners' proficiency levels, learning styles, and preferences. By analyzing learners' performance and progress, Duolingo offers customized learning pathways and exercises, ensuring targeted and relevant language practice and instruction. This personalized approach promotes autonomous learning, enhances learner engagement, and optimizes language acquisition and mastery, making Duolingo a valuable asset in English teaching in higher education.

Duolingo's gamified lessons and interactive exercises enhance learner engagement, motivation, and participation in English language learning activities. By incorporating game elements, such as points, levels, and rewards, Duolingo fosters a competitive and enjoyable learning environment, encouraging learners to actively engage with the material and practice their English language skills regularly. This gamified approach promotes active and collaborative learning experiences, making language learning more enjoyable and motivating for learners in higher education settings.

In addition to its primary language courses, Duolingo serves as a valuable supplemental learning tool in English teaching in higher education. By offering additional practice, reinforcement, and support to learners, Duolingo facilitates continuous learning, improvement, and skill development in all language domains (reading, writing, speaking, listening). As a result, Duolingo complements traditional English teaching methodolo-

gies and curricula, providing learners with diverse and comprehensive language learning opportunities and resources.

Despite its numerous benefits, Duolingo's AI-driven exercises and gamified lessons may lack authentic language practice opportunities, potentially limiting learners' exposure to real-world English language use and impacting their communicative competence development and cultural awareness. To address this limitation, educators should supplement Duolingo's curriculum with authentic materials, activities, and interactions, ensuring a balanced and integrated approach to language learning and promoting learners' authentic and communicative competence development.

But still over-reliance on Duolingo and technology in English teaching may lead to reduced human interaction, personalized support, and authentic language practice opportunities, potentially impacting the quality of English language teaching and learning experiences and learners' social, cultural, and communicative competence development. To mitigate this risk, educators should integrate Duolingo strategically into their teaching practices, balancing technology use with face-to-face interactions, personalized support, and authentic language practice opportunities to foster a comprehensive and enriching language learning environment.

Duolingo's general English language courses may not fully address the specific academic English language skills and requirements needed in higher education settings. As a result, Duolingo's effectiveness and relevance in supporting learners' academic success and language proficiency development in academic contexts may be limited. To enhance Duolingo's applicability and effectiveness in English teaching in higher education, educators should supplement Duolingo's curriculum with specialized academic English language courses, materials, and activities, ensuring learners acquire the necessary academic English skills and competencies to succeed in their academic endeavours.

The integration of Duolingo in English teaching in higher educational institutions offers promising opportunities to enhance language learning, facilitate personalized and adaptive learning experiences, and promote learner engagement and motivation. However, addressing the associated challenges and limitations, ensuring a bal-

anced and integrated approach to technology use, and focusing on the development of academic English skills and competencies are crucial to get the full potential of Duolingo and promoting effective, engaging, and personalized English language teaching and learning experiences.

To optimize Duolingo's role and usage in English teaching in, it is advised for teachers to:

- implement a blended learning approach, combining Duolingo's online platform with traditional teaching methods and face-to-face interactions to promote a balanced and comprehensive language learning environment;

- supplement Duolingo's curriculum with authentic materials, activities, and interactions to enhance learners' exposure to real-world English language use, foster authentic and communicative competence development, and promote cultural awareness and intercultural communication skills;

- integrate specialized academic English language courses, materials, and activities into Duolingo's curriculum to address learners' specific academic English language needs, support their academic success, and facilitate their language proficiency development in academic contexts.

Not long ago, IELTS and TOEFL received a convenient and interesting alternative – Duolingo English Test. This is an online English language test that is accepted by more than 4,000 universities around the world. To take it, students don't even need to leave their home, they only need a computer with a stable Internet connection, working speakers, a camera and microphone, and a quiet place where no one will disturb them.

Conclusions. Thus, in the process of researching and integrating artificial intelligence applications in foreign language classes, it is necessary to identify their significant motivational potential. The AI application is an excellent simulator for

learning English and any other foreign language, an aid for teachers and an effective tool for student independent work. Personalized and entertaining learning, individualization, pleasure from regular classes, live communication with native speakers, understanding of the goal, accessibility around the world, various learning methods, constant improvement and bringing acquired skills to automatism through the use of visual, auditory and motor memory contribute to the formation of communicative competence and intercultural interaction, which is the ultimate goal for which students study a foreign language.

Duolingo has emerged as a valuable and accessible language learning platform in English teaching in higher education, offering personalized, adaptive, and engaging learning experiences tailored to individual learners' needs, preferences, and proficiency levels. While Duolingo offers numerous benefits and opportunities to enhance language learning and teaching practices, addressing the associated challenges and limitations, ensuring a balanced and integrated approach to technology use, and focusing on the development of authentic and academic English language skills are crucial to ensuring its effective and responsible integration in English teaching in higher education and promoting successful language acquisition and academic success for learners worldwide.

Though highly beneficial, leveraging Duolingo in the landscape of higher education requires a balanced and thoughtful approach. It is essential to supplement the digital platform with authentic language learning opportunities and specialized materials that meet the nuanced needs of academic English. This dual approach will foster more comprehensive language skills, preparing students not only for academic success but for real-world linguistic challenges as well.

REFERENCES

1. Apoko, T. W., Dunggio, A. A., & Chong, S. L. (2023). The students' perceptions on the use of mobile-assisted language learning through Duolingo in improving vocabulary mastery at the tertiary level. *English Review: Journal of English Education*, 11(1), 17–26. <https://doi.org/10.25134/erjee.v11i1.7069>.
2. De La Vall, R. R. F., & Araya, F. G. (2023). Exploring the benefits and challenges of AI-Language learning tools. *The International Journal of Social Sciences and Humanities Invention*, 10(01), 7569–7576. <https://doi.org/10.18535/ijsshi/v10i01.02>.
3. Hakimantieq, H., Suherdi, D., & Gunawan, W. (2022). Duolingo as a Mobile-Assisted Language Learning: A new supplementary of learning basic English reading for EFL students. *Edukatif*, 4(6), 7548–7558. <https://doi.org/10.31004/edukatif.v4i6.4104>.
4. Irzawati, I. (2023). The integration of Duolingo into EFL learning. *Esteem*, 6(2), 328–337. <https://doi.org/10.31851/esteem.v6i2.12317>.

5. Li, Z., & Bonk, C. J. (2023). Self-directed language learning with Duolingo in an out-of-class context. *Computer Assisted Language Learning*, 1–23. <https://doi.org/10.1080/09588221.2023.2206874>.
 6. Mijwil, M. M., Abdulrhman, S. H., Abttan, R. A., Mijwil, M. M., & Alkhazraji, A. (2023). Artificial intelligence applications in English language teaching: A short survey. *Asian Journal of Applied Sciences*, 10(6). <https://doi.org/10.24203/ajas.v10i6.7111>.
 7. Nita, S., Sari, E. R. N., Sussolaikah, K., & Risky, S. M. F. (2023). The implementation of Duolingo application to enhance English learning for millennials. *Journal International of Lingua and Technology*, 2(1), 1–9. <https://doi.org/10.55849/jiltech.v2i1.215>.
 8. Peláez-Sánchez, I. C., & Velásquez-Durán, A. (2023). The impact of Duolingo in developing students' linguistic competence: an aspect of communicative language competences. *Educação E Pesquisa*, 49. <https://doi.org/10.1590/s1678-4634202349252467eng>.
 9. Permatasari, D., & Aryani, F. (2023). Duolingo: an enchanting application to learn English for college students. *ELTR Journal*, 7(2), 101–109. <https://doi.org/10.37147/eltr.v7i2.176>.
 10. Ritonga, M., Febriani, S. R., Kustati, M., Khaef, E., Ritonga, A. W., & Yasmar, R. (2022). Duolingo: an Arabic Speaking Skills' learning platform for andragogy education. *Education Research International*, 2022, 1–9. <https://doi.org/10.1155/2022/7090752>.
 11. Su, F., & Zou, D. (2022). Learning English with the mobile language learning application “Duolingo”: the experiences of three working adults at different proficiency levels. *International Journal of Mobile Learning and Organisation*, 16(4), 409. <https://doi.org/10.1504/ijmlo.2022.125959>.
 12. Vesselinov, R., & Grego, J. (2012, December). Duolingo effectiveness study: FINAL REPORT. Retrieved from https://theowlapp.health/wp-content/uploads/2022/04/DuolingoReport_Final-1.pdf.
 13. Zou, B., Guan, X., Shao, Y., & Chen, P. (2023). Supporting speaking practice by social Network-Based Interaction in Artificial intelligence (AI)-Assisted language learning. *Sustainability*, 15(4), 2872. <https://doi.org/10.3390/su15042872>.
-

Т. П. ГОЛУБ

*кандидат педагогічних наук, доцент,
доцент кафедри англійської мови технічного спрямування № 2,
Національний технічний університет України «Київський політехнічний інститут
імені Ігоря Сікорського», м. Київ, Україна
Електронна пошта: ukraine.golub@gmail.com
<https://orcid.org/0000-0002-7757-880X>*

О. О. КОВАЛЕНКО

*викладач кафедри англійської мови технічного спрямування № 2,
Національний технічний університет України «Київський політехнічний інститут
імені Ігоря Сікорського», м. Київ, Україна
Електронна пошта: olga-kovalenko@ukr.net
<https://orcid.org/0000-0003-4781-8611>*

О. І. НАЗАРЕНКО

*викладач кафедри англійської мови технічного спрямування № 2,
Національний технічний університет України «Київський політехнічний інститут
імені Ігоря Сікорського», м. Київ, Україна
Електронна пошта: nazarenkoits@gmail.com
<https://orcid.org/0000-0002-2560-3815>*

Л. М. ЖИГЖИТОВА

*викладач кафедри англійської мови технічного спрямування № 2,
Національний технічний університет України «Київський політехнічний інститут
імені Ігоря Сікорського», м. Київ, Україна
Електронна пошта: lmzh.its@gmail.com
<https://orcid.org/0000-0003-1814-4881>*

РОЛЬ DUOLINGO У ВИКЛАДАННІ ТА ВИВЧЕННІ АНГЛІЙСЬКОЇ МОВИ У ВИЩІЙ ОСВІТІ

У статті розглядається застосування Duolingo у вищій освіті як засобу навчання англійської мови, аналізуються його переваги, обмеження та оптимальні стратегії інтеграції. Доступність, гнучкість і персоналізований підхід до навчання Duolingo, який підтримується алгоритмами на основі штучного інтелекту, пропонують індивідуальний освітній досвід, який покращує залучення учнів через гейміфікацію. Хоча Duolingo є ефективним додатковим інструментом до традиційних методів навчання, задовольняючи потреби студентів, які мають початковий і середній рівні володіння іноземною мовою, він не забезпечує автентичної мовної практики та не відповідає вимогам академічної англійської. Впровадження гейміфікації підвищує залучення та мотивацію користувачів, роблячи його корисним доповненням до традиційних методологій навчання, пропонуючи додаткову практику. Приймаючи збалансовану стратегію інтеграції, викладачі можуть використовувати потенціал Duolingo для покращення вивчення мови у вищих навчальних закладах. У статті описані переваги використання Duolingo, зокрема зручність навчання у власному темпі та в будь-якому місці, адаптовані шляхи навчання за допомогою штучного інтелекту та стимулювання мотивації завдяки гейміфікованим елементам. Це також позиціонує Duolingo як цінне доповнення до звичайних академічних програм, покращуючи навчання. Однак визначені й певні недоліки, такі як недостатня автентична мовна практика, ризик зниження особистої взаємодії через залежність від технологій і обмежена увага платформи до академічних мовних навичок. Щоб протистояти цим проблемам, в статті рекомендується запроваджувати стратегію змішаного навчання, яка поєднує Duolingo з традиційними освітніми практиками, інтеграцію автентичних матеріалів для культурної та мовної компетентності та включення спеціалізованих курсів для академічних навичок англійської мови. Пропонується включення Duolingo в структуру викладання англійської мови у вищій освіті, оскільки збалансований підхід, який поєднує технологічні інструменти з живим спілкуванням і реальною практикою, посилить переваги Duolingo, сприяючи таким чином більш ефективному вивченню мови та академічній успішності.

Ключові слова: Duolingo, вища освіта, штучний інтелект, навчання англійської мови, вивчення англійської мови, гейміфікація, змішане навчання.