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STUDENTS' ATTITUDES TOWARD THE INTEGRATION OF THE DUOLINGO APPLICATION IN ENGLISH LANGUAGE LEARNING

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Abstract: The rapid pace of technological advancement and the necessity of keeping abreast of progressive contemporary tools point to emerging challenges in language learning, highlighting the need for innovative digital platforms such as Duolingo, which has established itself as a leading application in the acquisition and enhancement of (English) language skills. A mixed-methods approach was employed, incorporating a structured survey to assess quantitative perceptions of Duolingo alongside semi-structured interviews to explore qualitative insights into students' experiences. The participants in this study were first-year university students enrolled in the Faculty of Natural and Technical Sciences and the Faculty of Electrical Engineering, studying English as part of their curriculum. The sample consisted of 30 students who responded to a total of 11 structured survey questions. The findings indicate that the participants evaluated Duolingo as highly effective in improving their English language proficiency. Furthermore, the qualitative data revealed that the perceived effectiveness of Duolingo was attributed to its user-friendly interface, engaging features, and flexibility. The results confirm the effectiveness of digital language-learning tools such as Duolingo and underscore their potential to complement traditional didactic approaches to language instruction. The findings suggest that Duolingo has a positive impact on the participants, who evaluated the application as accessible, useful, and enjoyable for their English language practice.

Keywords: *students' perceptions; mobile-assisted language learning; digital tools; Duolingo; English language learning.*

1. Introduction

The use of new technologies in everyday life across the general population is no longer merely a trend but a necessity for keeping pace with progressive innovations. The integration of technology into education has become increasingly significant, particularly in language learning, where digital tools can enhance student engagement and motivation. In recent years, Duolingo, as a widely recognized language-learning application, has been broadly adopted by educational institutions and individual learners as a supplementary tool for acquiring English language proficiency (Suryanto, 2024). Duolingo stands out as a relevant and comprehensive educational platform, intelligently integrating

listening, reading, writing, vocabulary development, grammar, and speaking practice (Habibie, 2020). The integration of mobile technology into language learning enables both students and instructors to access authentic learning materials and maintain continuous interaction. Research findings indicate the effectiveness of using the Duolingo application to enhance motivation among learners of English, as well as to provide opportunities for practicing speaking skills both inside and outside the classroom (Al-Hakmani, 2025). The Duolingo application is free of charge, easily accessible, and practical, as it combines technology, gamification, and educational and research-based content to facilitate more successful and efficient language acquisition. These features allow learners to study the target language anytime and anywhere. Consequently, Duolingo has become one of the most popular language-learning applications worldwide, with millions of active daily users (Loewen et al., 2019). Furthermore, the application offers courses in more than 30 languages, with English being among the most widely studied, making it attractive to a broad spectrum of users. It is accessible on all major mobile and desktop platforms and provides personalized learning experiences tailored to the learner's initial language proficiency level, preferred pace, learning style, and specific content needs. In all such contexts of language acquisition, Duolingo functions as a motivating factor that encourages sustained engagement in the learning process (Alpika et al., 2026). Additionally, it facilitates continuous daily learning through short, interactive lessons that can be incorporated into virtually any schedule. Duolingo has gained prominence among numerous language-learning applications due to its listening exercises, adaptive task progression, and immediate feedback mechanisms, all of which contribute to increased learner motivation and engagement (Olimat, 2024; Tuong & Dan, 2024). The innovative design, practical applicability, and demonstrated effectiveness of Duolingo as a contemporary tool for learning English, along with its widespread use in university settings (Loewen et al., 2019; Habibie, 2020), provided the impetus for investigating the attitudes and perceptions of students regarding the use and benefits of the Duolingo application.

2. Literature review

The appeal and the pedagogical effects of using Duolingo in English language learning have generated considerable interest among students of diverse nationalities, cultural backgrounds, and religious affiliations. Evidence for this claim is provided by Malinda and Daulay (2024), whose findings indicate that many surveyed students used Duolingo to improve their language skills, demonstrating a general interest in and commitment to learning English. Furthermore, research has shown that students evaluated Duolingo as highly effective in enhancing their English proficiency, reporting elevated levels of confidence in their language competence following its use (Malinda & Daulay, 2024; Hawa & Roslaini, 2024). Qualitative data additionally attribute the platform's effectiveness to its user-friendly interface, engaging features, and flexibility (Hawa & Roslaini, 2024; Malinda & Daulay, 2024). These findings are corroborated by Gualan and Loaiza (2025), who report that students express favourable perceptions of Duolingo,

identifying its ease of use and engaging activities as key factors shaping their learning experience. Such results underscore the application's potential in supporting language acquisition. Moreover, empirical evidence indicates a significant positive effect of Duolingo on vocabulary development, with learners demonstrating higher levels of lexical knowledge compared to those who do not use the platform (Gualan & Loaiza, 2025; Fakhurrriana et al., 2024). In alignment with these conclusions, other studies have reported similarly positive outcomes associated with Duolingo use. For instance, the study by Malinda and Daulay (2024) found that students who used Duolingo for 10–20 minutes daily over 90 days exhibited substantial improvements in overall language proficiency, particularly in reading and listening skills.

Research by Rahma and Irianti (2024) suggests that Duolingo actively engages learners, reduces boredom, and encourages exploratory learning, while also providing exercises focused on word recognition and varied contextual usage. It is important to emphasize that students' perceptions of Duolingo as a valuable resource for improving their English proficiency reflect the platform's capacity to enhance engagement and self-confidence in language learning. Many learners express a preference for modern educational tools that enable a more interactive and enjoyable learning process (Bovermann & Bastiaens, 2020).

Research conducted by Suryanto (2024) demonstrates that Duolingo significantly increased students' motivation to learn English, findings that coincide with reports regarding its popularity, effectiveness, and feedback mechanisms (Tuong & Dan, 2024). Nevertheless, certain studies (Alpika et al., 2026) indicate that while Duolingo is perceived as flexible and motivating, it may be less comprehensive in scope. Accordingly, Duolingo serves most effectively as a supplementary resource that consolidates foundational skills when integrated with classroom instruction. While the majority of these studies examined Duolingo within formal classroom contexts, others have documented its effective use as an independent self-study resource (Loewen et al., 2019; Olimat, 2024).

3. Methodology

The methodological approach employed in this research was carefully selected, designed, and implemented in alignment with the established research objectives. These objectives were clearly defined with reference to the specific target group of students from the two participating faculties who, although not majoring in English language studies, have English as a compulsory course. This cohort represents a population for whom technology-oriented disciplines constitute the primary academic focus, making examination of digital tools such as Duolingo in their English language learning context particularly pertinent.

3.1 Research Design

The present study employed a mixed-methods research design that combined quantitative data obtained through a structured survey with qualitative data gathered through semi-structured interviews. The survey was administered digitally to the participants, drawing on the use of smartphones as the primary access medium,

to examine their attitudes, opinions, behaviours, and characteristics regarding the use of the Duolingo platform in English language learning. This study was guided by the following research questions:

- (1) What are the attitudes and perceptions of first-year students from the two participating faculties toward the use of Duolingo as a tool for English language learning?
- (2) To what extent do students perceive Duolingo as effective in improving their English language proficiency?

In selecting the target group and formulating the corresponding questionnaire items, a phased exploratory process was undertaken. This process included direct contact with students, individual semi-structured interviews, as well as pre-testing of the survey instrument to ensure clarity and appropriateness of the items. Such a structured approach to research design facilitated the collection of quantified data supported by qualitative, contextually grounded responses. By integrating the quantitative survey analysis with the qualitative interview data, the study sought to provide a comprehensive understanding of language-learning experiences facilitated by Duolingo.

3.2 Participants

A total of 30 participants were recruited for this study from the Faculty of Natural and Technical Sciences and the Faculty of Electrical Engineering at Goce Delcev University in Stip, North Macedonia. The participants were selected through purposive sampling, as the target population consisted specifically of first-year undergraduate students enrolled in non-English-major programmes who were required to study English as a compulsory subject in their curriculum. The English course they attended followed a general language curriculum focusing on communicative competence and academic English skills, rather than a Language for Specific Purposes (LSP) framework specifically tailored to technical or engineering discourse. This sampling strategy ensured that the selected cohort shared the key characteristics relevant to the research objectives, namely, exposure to English language instruction in a predominantly technical academic context. The target group consisted of 70% male and 30% female students, reflecting the gender distribution typical of technically oriented programmes at the institution. Their ages ranged between 18 and 20 years. The level of their English language proficiency varied individually, but it was estimated to fall within the A2–B1 range on the CEFR scale. Before completing the questionnaire, the participants were required to use the Duolingo application independently for a period of four weeks. During this period, they were asked to complete at least one lesson per day on the platform, covering skills available in the Duolingo English course (vocabulary, grammar, listening, and reading). This hands-on engagement with the application was intended to ensure that participants had sufficient direct experience with Duolingo to provide informed and contextually grounded responses to the survey items.

3.3 Instruments

The survey instrument was carefully designed based on a review of existing literature on Duolingo and mobile-assisted language learning, drawing on validated measurement scales previously employed in comparable studies (Nasrul & Fatimah, 2023; Fakhurriana et al., 2024; Gualan & Loaiza, 2025). The items were adapted and contextualised to reflect the specific research objectives of the present study, thereby ensuring both relevance and content validity. Likert-type scales and closed-ended questions were employed to capture participants' perceptions regarding the usability, engagement, and effectiveness of the Duolingo platform. According to Connor Desai and Reimers (2019), closed-ended questions are particularly suitable in research contexts, as they facilitate greater response consistency and are easier to administer, code, and analyze, especially when used in conjunction with Likert scales. Psychometric scales, commonly referred to as Likert scales, are among the most frequently utilized instruments in questionnaire-based research (Gualan & Loaiza, 2025). Our survey instrument consisted of 11 items structured according to a five-point Likert-scale format with the following response options: "Strongly Agree" (SA = 5), "Agree" (A = 4), "Neutral" (N = 3), "Disagree" (D = 2), and "Strongly Disagree" (SD = 1). To interpret the mean scores obtained for each item, the following scale was adopted: 1.00–1.80=Very Low (strongly disagreed); 1.81–2.60=Low (disagreed); 2.61–3.40=Moderate (neutral); 3.41–4.20=High (agreed); 4.21–5.00=Very High (strongly agreed). This interpretive framework is consistent with approaches used in comparable survey-based research on student perceptions of digital learning tools (Nasrul & Fatimah, 2023; Fakhurriana et al., 2024). The questionnaire functioned as a written instrument presenting respondents with a series of statements to which they were required to select one of the provided response options. Additional reference was made to insights and practices discussed in the works of Nasrul and Fatimah (2023), Fakhurriana et al. (2024), and Gualan and Loaiza (2025), as well as to publicly available information on the pedagogical design of the Duolingo platform.

In addition to the survey, a semi-structured interview guide was developed to explore students' experiences with Duolingo in greater depth. The interview guide consisted of the following seven questions: (1) How would you describe your overall experience using the Duolingo application for English language learning? (2) Which specific features of Duolingo did you find most useful for improving your English skills, and why? (3) In what ways, if any, do you feel that your English language proficiency has changed following regular use of Duolingo? (4) How does learning English through Duolingo compare to your experience of learning English in the classroom? (5) What challenges, if any, did you encounter while using the application, and how did you manage them? (6) To what extent do you consider Duolingo an effective supplementary tool for English language learning? (7) Would you recommend Duolingo to other students studying English? Please explain your reasons. The interviews were conducted in the participants' native language (Macedonian) to minimize communication barriers and ensure richer, more authentic responses. (Braun & Clarke, 2022).

3.4 Procedure

The data collection procedure was conducted in a phased and transparent manner across a total period of six weeks. In the first phase (Week 1), the participants were briefed on the aims and objectives of the study, and written informed consent was obtained. Only those students who voluntarily agreed to participate were included in the study. During the following four weeks (Weeks 2–5), participants used the Duolingo application independently on their smartphones, completing a minimum of one lesson per day. At the end of the four-week usage period, in Week 6, data collection took place in two stages. First, the questionnaire, structured according to the Likert-scale format, was introduced to participants during a class session to ensure clarity regarding its format and response options, and subsequently distributed electronically via Microsoft Forms. The participants were informed that completing the questionnaire would require approximately 10 minutes and that responses were to be submitted within a 24-hour period. Second, following survey completion, a purposive sub-sample of eight participants, drawn voluntarily from the thirty survey respondents, took part in individual semi-structured interviews conducted online via Microsoft Teams. Each interview lasted approximately 20–30 minutes. The interviews ensured the qualitative component was informed by direct experience with the survey instrument (Braun & Clarke, 2022). Quantitative survey data were exported from Microsoft Forms and subjected to descriptive statistical analysis, while the qualitative interview data were analyzed inductively to identify recurrent themes.

4. Results

The quantitative data were collected via Microsoft Forms and subsequently analyzed using descriptive statistics. The results are presented in Table 1.

Table 1. Responses to the survey questions

Statements	SD	D	N	A	SA	M
Duolingo is a useful tool for learning English	-/-	-/-	1/3%	15/50%	14/47%	4.43
Duolingo suits different learning approaches	-/-	-/-	6/20%	14/47%	10/33%	4.13
Duolingo offers content organized according to each user's skill level	-/-	-/-	3/10%	17/59%	9/31%	4.07
Duolingo enables significant practice that is engaging, conversational, and effective	-/-	1/3%	3/10%	16/55%	9/31%	4.00
Duolingo makes learning English interesting, fun and creative	1/3%	1/3%	2/7%	11/38%	14/48%	4.10
Duolingo is easy to use and provides clear and understandable materials, questions, and information	1/3%	1/3%	7/24%	14/48%	6/21%	3.67

Duolingo is an attractive and accessible application because it allows learning anytime and anywhere	-/-	-/-	2/7%	13/45%	14/48%	4.27
Duolingo offers multiple options for language learning and for improving grammar, structure, and vocabulary	1/3%	-/-	4/14%	16/55%	8/28%	3.90
Duolingo is motivating to use on a smartphone because it encourages engagement and fun in the process of language learning	1/3%	-/-	4/14%	15/52%	9/31%	3.93
Duolingo provides relevant information about the English language and motivating lessons for students, thereby improving their learning experience	-/-	2/7%	1/3%	19/66%	7/24%	3.93
Duolingo is an effective strategy for learning new words and phrases	-/-	1/3%	3/10%	13/45%	12/41%	4.10

4.1 Quantitative Findings

Table 1 presents the distribution of responses and the mean score (M) for each of the 11 survey items. As shown in Table 1, all mean scores fall within the High or Very High range ($M = 3.67$ to $M = 4.43$), indicating an overall strongly positive evaluation of Duolingo across all dimensions assessed. Only a very small number of respondents expressed negative attitudes: across four of the eleven items, only one participant selected “Strongly Disagree” or “Disagree.” Neutral responses were present for all eleven items; however, for eight items, only 1–4 respondents (3–14%) selected this option, while for three items, 5–7 respondents (17–24%) were neutral. The highest mean score was recorded for the item “Duolingo is a useful tool for learning English” ($M = 4.43$; Very High), indicating near-unanimous agreement with this statement. The item “Duolingo is an attractive and accessible application for users because it allows learning anytime and anywhere” also received a Very High mean ($M = 4.27$). The lowest mean was obtained for “Duolingo is easy to use and provides clear and understandable materials, questions, and information” ($M = 3.67$), which, while still falling in the High range, suggests comparatively greater variability in students’ perceptions of Duolingo’s clarity. These results collectively indicate that most students hold predominantly positive attitudes toward Duolingo as a tool for English language learning, perceiving it as useful, accessible, motivating, and engaging.

4.2 Qualitative Findings

The thematic analysis of the semi-structured interview data yielded four principal themes that closely aligned with and enriched the quantitative survey findings. The first theme, perceived usefulness and accessibility, was consistently highlighted by participants, who described Duolingo as a practical and readily accessible learning resource. Representative responses included observations such as “I can use it anywhere, even on the bus” and “it does not feel like studying,

which makes me want to open it every day.” The second theme, motivational and gamification features, emerged prominently. Participants frequently cited the application’s game-like elements, including streaks, points, and level progression as key drivers of sustained engagement. The third theme, skill development and vocabulary building, reflected participants’ awareness of concrete improvements in their English vocabulary and reading comprehension, consistent with the high mean scores recorded for items addressing these areas in the survey. The fourth theme, Duolingo as a supplementary tool, captured a recurring view that, while Duolingo was considered valuable, it was most effective when used alongside formal classroom instruction rather than as a standalone learning solution. Overall, the qualitative findings corroborated and deepened the quantitative results, providing richer insight into the mechanisms underlying students’ positive perceptions of the application.

5. Discussion

Generalizing the findings from the conducted research, it can be concluded that they align in multiple aspects with results reported by various scholars who have examined the use of the Duolingo application by students for English language learning. In this context, one of the most significant findings is that students perceive Duolingo as a highly useful tool for learning English. Additionally, students consider the application easy to use and navigate, allowing them to focus on learning without technological barriers, a conclusion supported by Hawa and Roslaini (2024), Malinda and Daulay (2024), and Alpika et al. (2026), among others. Most of the students (97%) rated Duolingo as a useful tool for English language learning, which substantially exceeds the 63% agreement rate reported by Sakkir and Syamsuddin (2023). The content of Duolingo is sufficiently diverse, keeping students engaged, stimulated, and motivated, a point emphasized by Suryanto (2024) and Al-Hakmani (2025). Zainudin and Andayani (2025) concluded that using Duolingo significantly improves students’ vocabulary acquisition in English language learning. This conclusion aligns with our findings, where 55% of participants agreed and 28% strongly agreed that Duolingo provides multiple options for language learning and contributes to vocabulary and structural development. Furthermore, the findings confirmed increased engagement, motivation, and active participation among students, supported by Duolingo’s features, including repetition and adaptive feedback mechanisms. In our study, 66% agreed, and 24% strongly agreed with these statements, corroborating the results of Fakhrurriana et al. (2024), Al-Hakmani (2025), and others.

Additionally, 48% of respondents indicated that Duolingo makes learning English interesting, enjoyable, and creative, which corresponds with the observations of Malinda and Daulay (2024). Duolingo is also perceived as an attractive and accessible application facilitating individualized learning anytime and anywhere (Liebnis et al., 2025; Suryanto, 2024).

The positive feedback from the participants highlighted Duolingo’s engaging and adaptive approach, which participants associated with perceived improvements

in language skills, particularly in listening and speaking — findings consistent with empirical pre- and post-test studies documenting significant gains among Duolingo users (Tuong & Dan, 2024; Kazu & Kuvvetli, 2025). The findings further confirmed the value of Duolingo as a digital language-learning tool and its potential to complement formal instruction.

It should be acknowledged, however, that Duolingo's content is primarily designed for general language learners, and its gamified, structured format may be perceived as overly simplistic by more advanced users or those requiring language for specialised professional contexts. As the participants in the present study were engineering students following a general English curriculum rather than a Language for Specific Purposes (LSP) programme, the platform's scope is broadly appropriate for their proficiency level and learning objectives. Nevertheless, future research could investigate whether attitudes toward Duolingo differ among students enrolled in LSP courses, where domain-specific vocabulary and discourse conventions assume greater importance.

The particularly positive response of engineering students to Duolingo also warrants reflection. Students in technically oriented disciplines are typically accustomed to structured, logic-based problem-solving, iterative feedback, and measurable progress — features that are central to Duolingo's adaptive learning design. The platform's gamification elements, including progress streaks, point systems, and level advancement, may resonate particularly well with learners who are motivated by quantifiable outcomes and sequential skill progression (Loewen et al., 2019). Furthermore, Duolingo's self-paced structure accommodates the demanding academic schedules of technical students, enabling language practice to be integrated flexibly into daily routines without conflicting with core disciplinary coursework.

The relatively homogeneous proficiency profile of the sample (estimated A2–B1 on the CEFR scale) may partly explain the broadly positive attitudinal outcomes reported, as this level aligns well with Duolingo's content difficulty. The gender composition of the sample (70% male, 30% female) may also have influenced results, given that gender has been identified as a variable in language learning motivation (Kissau, 2006); future studies with more balanced gender distributions would enable more differentiated conclusions.

6. Limitations

Several limitations of the present study should be noted. The sample was small ($N = 30$) and drawn from a single institution, limiting generalisability. Non-probability sampling and voluntary participation may have introduced selection bias, and the gender distribution (70% male, 30% female) reduces representativeness. As the study relied on self-reported attitudinal data without pre- and post-tests, causal claims regarding Duolingo's effectiveness cannot be made. Future research should use larger, more diverse samples, incorporate proficiency assessments, and examine the moderating roles of language level and gender.

7. Pedagogical Implications

The present findings carry practical implications for EFL instructors in technically oriented tertiary settings. Recommending Duolingo as a structured daily supplement — with a minimum of one lesson per day — can bridge independent digital learning and formal instruction, reinforcing vocabulary, grammar, and receptive skills (Loewen et al., 2019). Since participants highlighted listening and reading as areas of perceived improvement, blended activities linking Duolingo practice to in-class communicative tasks appear particularly effective. Instructors should also consider potential gender-differentiated engagement patterns (Kissau, 2006) when designing guidance for individual learners.

8. Conclusion

By synthesizing insights regarding the use of the Duolingo application in English language learning within academic settings, together with the findings from our most recent research, the data suggest that, within this exploratory sample, most participants were drawn to this application due to its personalized learning tools, which they perceived to effectively address their individual needs and specific learning requirements.

The research findings suggest that students hold predominantly positive attitudes toward Duolingo as a language-learning platform, reporting that its anytime, anywhere accessibility and perceived contribution to various language skills yielded favourable outcomes in vocabulary and phrase acquisition. As students increasingly turn to digital platforms for language learning, Duolingo's ongoing innovation and responsiveness to user feedback are crucial in shaping both its present standing and its future success. Through the continuous development and refinement of its features, Duolingo maintains its position as a leading language-learning platform and continues to meet the needs of learners seeking practical, engaging, and effective language-learning solutions.

The participants in this study reported finding Duolingo engaging and beneficial for their learning process, regarding it as a motivating and enjoyable tool for English language practice. Their positive attitudes toward Duolingo suggest the application's potential to support learner engagement and self-confidence, though these findings should be interpreted within the constraints of the study's exploratory design and small sample size.

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