9th International Artificial Intelligence and Data Processing Symposium (IDAP'25), *Sept 6-7, 2025, Malatya – Türkiye and Seoul – Republic of Korea*

User Experience Analysis for Mobile-Assisted Language Learning Through Gamification

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***Abstract*—Digital technologies have transformed educational paradigms, particularly in language learning through mobile-assisted language learning (MALL) and gamification strategies. Digital natives expect interactive learning experiences integrating with their technology-rich environments. Game-based learning (GBL) combines entertainment with educational objectives, demonstrating potential for improving learner motivation and knowledge retention in second language acquisition. This study evaluates the effectiveness and user experience of a proprietary gamified mobile application for English language learning, focusing on practical skill development and cross-cultural applicability. A comprehensive evaluation was conducted using a 38-question, 5-point Likert-scale questionnaire administered to 516 participants aged 14-25 from Türkiye, Hungary, and Germany following two months of application usage. The questionnaire encompassed five dimensions: User Experience and Interface, Content Quality and Effectiveness, Motivation and Tracking Mechanisms, Interaction and Personalization, and Overall Satisfaction. Data analysis employed descriptive statistics, correlation analysis, and thematic evaluation. The application achieved consistently high satisfaction scores across all dimensions, with mean values ranging from 3.79 to 4.18. The highest-rated aspect was overall effectiveness as a language learning tool ($\bar{x} = 4.18$, $\sigma = 0.94$), while practical language skill applicability received strong endorsement ($\bar{x} = 4.14$, $\sigma = 1.00$). Correlation analysis revealed strong positive relationships between user experience factors, particularly between User Experience and Interface and Content Quality and Effectiveness ($r = 0.839$).The study demonstrates successful integration of gamification and mobile learning technologies for language education, with users perceiving significant educational value and practical applicability across different cultural contexts.**

***Index Terms*—gamification, mobile-assisted language learning (MALL), usability analysis, game-based learning, educational technology, English language learning.**

I. Introduction

Technological developments over the past few decades have fundamentally transformed the way society functions, including access to information, communication, and learning methods. The spread of digital devices, especially smartphones, tablets, and laptops, has revolutionized everyday life while opening new opportunities in education. Through the integration of artificial intelligence, cloud-based systems, mobile applications, and interactive platforms, the learning environment is increasingly transforming, becoming more dynamic and accessible to learners.

Today's secondary school students, often referred to as "digital natives" and members of Generation Z and Alpha, are growing up in a technological environment where the use of digital devices has become an integral part of everyday life. For them, the virtual world is not a separate dimension, but a natural environment for socializing, obtaining information, and entertainment. Accordingly, we can formulate a kind of expectation that learning processes should also take place in a similarly interactive, visually rich, and digitally supported form. Smart devices, applications, and online platforms are not merely complementary, but in many cases primary tools for learning. This is particularly true in the areas of language learning, independent practice, and knowledge assessment. However, the proximity of technology is not only an opportunity but also a challenge. Pedagogy must adapt to changing student needs and media consumption habits.

However, integrating technology into the education system does not simply mean using tools, but also requires pedagogical renewal. The use of information and communication technologies (ICT) tools creates opportunities for differentiating learning content, increasing student activity, and organizing learning independently of time and place. Mobile learning (m-learning) opportunities play a particularly important role in this process, allowing students to expand their knowledge at their own pace, often in a playful and motivating way. In addition to providing distance learning and convenience for students, m-learning also contributes significantly to improving student performance [1].

Gamification and game-based learning have shown particularly remarkable results in education in recent years. Games whose primary goal, in addition to entertainment, is to facilitate the learning process are referred to as serious games [2]. The incorporation of game mechanics such as scoring, different levels, feedback, and rewards into the learning process not only increases motivation but also encourages active par-

This study was supported by the Erasmus+ Program (KA220-SCH: Cooperation partnerships in school education) of the European Union under grant number 2023-1-HU01-KA220-SCH-000156504 (Project name: Foreign Language Gamification - Idegen Nyelv Tanulása Játékok Bevonásával). However, the European Commission and the Hungarian National Agency cannot be held responsible for any use that may be made of the information contained herein.

979-8-3315-8990-5/25/$31.00

ticipation, problem solving, and perseverance. Mobile-assisted language learning (MALL) refers to the integration of mobile phones into the language learning process. Gamification has proven to be particularly effective in language learning, considering its potential for classroom integration, independent learning, and collaboration [3]. As a result, learners can study individually and freely in terms of time, space, and motivation [4]. When developing language skills, a playful environment promotes learners' emotional engagement, reduces language anxiety, and increases their willingness to practice. Numerous studies and practical experience confirm that gamified learning environments and platforms effectively contribute to improving learning outcomes.

The aim of this study is to present the possibilities of integrating gamification and mobile learning into language learning, with a particular focus on the user experience of a proprietary language learning application and the results of related questionnaire-based research.

II. Related Work

The application implemented in this study can be examined around three main elements. The first of these is the game-based learning (GBL) in foreign language education element. Today, such applications are increasing. Another element can be considered as MALL. With the use of mobile technologies everywhere, it is not possible for educational technologies to remain indifferent to this. Finally, the combining gamification and mobile learning element is related to the research area. These three elements stand out as areas of interest in recent research.

GBL has emerged as a dynamic pedagogical approach that fosters engagement, motivation, and active participation among learners. It draws upon intrinsic motivation by incorporating elements such as competition, feedback, levels, and rewards [5]. In second language acquisition (SLA), games have been shown to increase learners' vocabulary retention, speaking confidence, and willingness to communicate [6], [7].

[8], in a comprehensive review of gamification in SLA, highlighted that game elements such as storytelling, avatars, and instant feedback significantly improve learner motivation and reduce anxiety, particularly among adolescents. Moreover, [9] pointed out the increasing shift toward digital game-based assessment systems, emphasizing their adaptability for tracking language learning outcomes. The integration of mobile technologies into language learning, referred to MALL, has reshaped the traditional language classroom into an on-the-go, interactive environment. [10] emphasized that MALL applications offer flexibility, personalization, and immediate access to multimedia content that enhance learners' autonomy. [11] developed a personalized intelligent mobile learning system that adapts to individual learners' needs. Their results showed a significant improvement in English language performance and learner satisfaction. Similarly, [6] found that EFL learners using a mobile game-based vocabulary tool demonstrated better learning outcomes and higher levels of self-efficacy than those in traditional settings. Recent studies advocate for the convergence of gamification and mobile learning to maximize educational impact. [5] proposed a mobile gamified learning system that significantly boosted students' engagement and achievement in English learning. In another study, [12] emphasized that combining augmented reality with mobile serious games provides contextual and situated learning experiences that are especially beneficial in language education. These findings support the idea that mobile-based gameful environments serve not only as learning tools but also as platforms for immersive, learner-centered experiences. Such environments are particularly effective for adolescent learners who are naturally inclined toward digital and interactive platforms [13].

III. Material and Method

This section describes the application, questionnaire, data and analysis methods used in the study.

A. Mobile Application

The aim of this application is to create an interactive and enjoyable platform for users to learn English by gamifying the process. The game integrates educational content into a series of interactive mini games, where players are challenged to complete tasks that help improve their language skills. By merging learning with fun, this app seeks to increase user engagement and retention while providing an effective language learning tool.

Key Objectives:

- Enhance user motivation through interactive gameplay mechanics.
- Provide a scalable learning experience with various mini-games and tasks.
- Encourage repeated engagement with progressively challenging content.

The application was developed using Unity 2022.3.15f1, providing a powerful platform for both 2D and 3D game development with cross-platform compatibility. Sample screenshots of the application are shown in Figure 1.

The mobile application is designed to facilitate the language learning process and to provide users with an interactive learning experience. In this context, topics such as "Personal Details, Family", "School", "The World of Work", "Lifestyle", "Traveling and Holidays" were selected to cover situations that users may encounter in their daily lives. Each topic is supported by scenarios that develop basic language skills and include examples of dialog that can be used in daily life. For example, in "Travelling and Holidays", users are faced with tasks that require practical language use, such as making travel plans, booking tickets, or convincing friends to take a package vacation.

The content in the app aims not only to improve grammar and vocabulary but also to increase cultural awareness. "Science and Technology" covers the place of technology in daily life and popular science topics, while "Money Matters" focuses on practical language expressions related to banking, family budgeting and shopping. Each module is enriched with

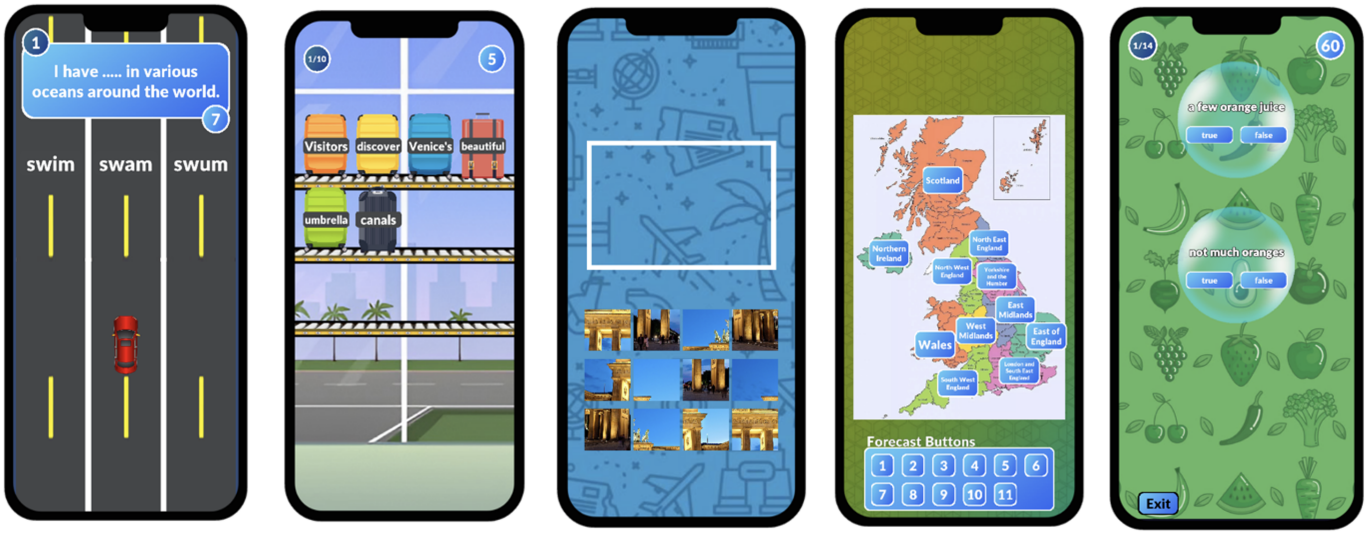


Fig. 1: Sapmle screenshots of the application.

interactive tasks and gamification elements that allow the user to learn at their own pace. This approach makes language learning more fun and motivating.

B. Data collection tools

The scale developed by [14] was used to evaluate the mobile application developed in the study. A simple and effective questionnaire was prepared by selecting the questions in the questionnaires within the scope of the application. In addition, the survey questions were expanded appropriately to evaluate the English content. The prepared survey questions were administered online and in English via Google Forms to users between the ages of 14-25 from Türkiye, Hungary, and Germany after they had experienced the application for about 2 months. In total, there are 38 different questions belonging to 5 different sub-fields. The questionnaire is a 5-point Likert-type questionnaire with voting scores ranging from 1 (lowest) to 5 (highest). The survey also includes an open-ended comment field for feedback. In the online survey application, the information and consent letter were presented to the users at the beginning of the survey. The survey was completely voluntary, and no personal data was collected.

C. Data and data preprocessing

The questionnaire was kept open online for 1 month to receive feedback from the participants. In total, more than 540 results were obtained during this period. More than 540 participants responded to the survey, providing an important data set to evaluate the effectiveness of the Foreign Language Gamification mobile application. When these questionnaire responses were examined, it was determined that some of the data did not meet the validity and reliability criteria for review and analysis. The following data cleaning and data preprocessing steps were performed by the researchers:

- All lines with blank answers have been deleted,
- Rows with answers in less than 25% of all questions were deleted,
- Lines giving 1 point to all questions have been deleted,
- Rows giving 5 points to all questions have been deleted,
- Missing and empty cells were filled by column averaging and rounding.

During all these processes, 28 rows were deleted and the analysis continued with a total of 516 user responses.

D. Analysis methods

The data obtained in the study were analyzed both question-based and in sub-sections. Both questions and sub-sections were interpreted with mean, standard deviation and correlation analysis methods. Mean shows the central tendency of the data and helps to understand the general trend for a question or subsection. For example, the mean score for a particular question of the questionnaire summarizes the respondents' overall opinion on that question. The mean equation is shown in (1).

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n} \tag{1}$$

where n is the total data in the dataset and x_i is the data in the i. row. Standard deviation refers to the spread of the data around the mean. A low standard deviation indicates that respondents answered the question in a similar way, whereas a high standard deviation indicates that respondent responses contain more variation. The standard deviation equation is shown in (2).

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n}} \tag{2}$$

Correlation analysis is used to measure the direction and strength of the relationship between two variables. This analysis has been applied to assess relationships between different

questions or subsections. For example, a strong positive correlation between "visual design" and "regular use of the app" may indicate that these two variables act together. The Pearson correlation coefficient equation for correlation analysis is shown in (3).

$$r = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2} \cdot \sqrt{\sum_{i=1}^{n}(y_i - \bar{y})^2}} \quad (3)$$

Here, r is the Pearson correlation coefficient and satisfies $-1 \leq r \leq 1$. A value of $r = 0$ indicates no correlation, $r < 0$ means a negative correlation, and $r > 0$ represents a positive correlation. According to the value of the correlation coefficient, the strength of the relationship between variables also changes. [15] presented a guideline that is often used in social sciences to interpret the correlation coefficient:

- 0.10 to 0.29: Small (weak) relationship
- 0.30 to 0.49: Moderate relationship
- 0.50 to 1.00: Large (strong) relationship

[16] classified the correlation coefficient as follows:

- 0.90 - 1.00: Very high
- 0.70 - 0.89: High
- 0.40 - 0.69: Medium
- 0.20 - 0.39: Low
- 0.00 - 0.19: Very low

These methods enabled a comprehensive interpretation of the study both at the individual question level and at the overall sub-section level.

IV. Findings

This study was conducted to evaluate the user experience and impact of the "Foreign Language Gamification" mobile application developed within the scope of the Erasmus+ project. The survey results obtained from the project reveal important information about the effectiveness of the gamified mobile application for language learning.

The findings reveal that users are generally satisfied with the app and that it contributes to language learning. The comprehensive nature of the response set allows for robust statistical analysis across multiple dimensions of user experience and learning effectiveness. The distribution of responses and mean values are shown in Figure 2, respectively.

As seen in Figure 2, the results of the study reveal that the participants are generally highly satisfied with the Foreign Language Gamification application. The average Likert scale scores ranged between 3.8 and 4.2, indicating that the application met user expectations to a great extent. This value range indicates that the participants' attitudes towards the application are concentrated between "agree" and "strongly agree". Figure 2a also shows the ratios of the first 5 questions with the highest number of responses to each Likert scale (1-5) in the responses given to the questionnaire. When these values are analyzed, the questions that received the highest number of 5 (five) votes are questions 12, 21, 38, 9, and 28 (46.3%, 46.3%, 45.5%, 45.5%, 45.5% and 44.8%) respectively. When the category distribution of the questions is analyzed, it is seen that there are questions from almost every category. The questions that received the most 4 (four) votes were questions 5, 2, 35, 8, and 17 (37.6%, 37.2%, 37.2%, 36.4% and 36%) respectively. The questions that received the most votes with an average vote of 3 were questions 1, 4, 5, 7, and 10 (30.2%, 29.5%, 24%, 23.6% and 23.6%). As can be seen from this, questions related to the user interface obtained more average results. The questions that received the most votes with a value of 2, which can be considered as insufficient votes in the scale, were the 29th, 6th, 36th, 31st and 2nd questions (7.9%, 7.4%, 6.6%, 6% and 5.8%). Finally, questions 30, 31, 36, 4, and 15 (5%, 5%, 5%, 5%, 4.5% and 4.1%) received the least number of votes (1).

Particularly noteworthy is the fact that the responses to question Q38 ("The app is an effective language learning tool in general") were among the highest with $\bar{x} = 4.18$ and standard deviation $\sigma = 0.94$. This result shows that the user perception of the main purpose of the application, which is effective language teaching, is quite positive and reveals that the educational value of the application is clearly perceived by the users. Table I shows the questions with the highest and lowest $\bar{x}$ values, their scores, and σ values.

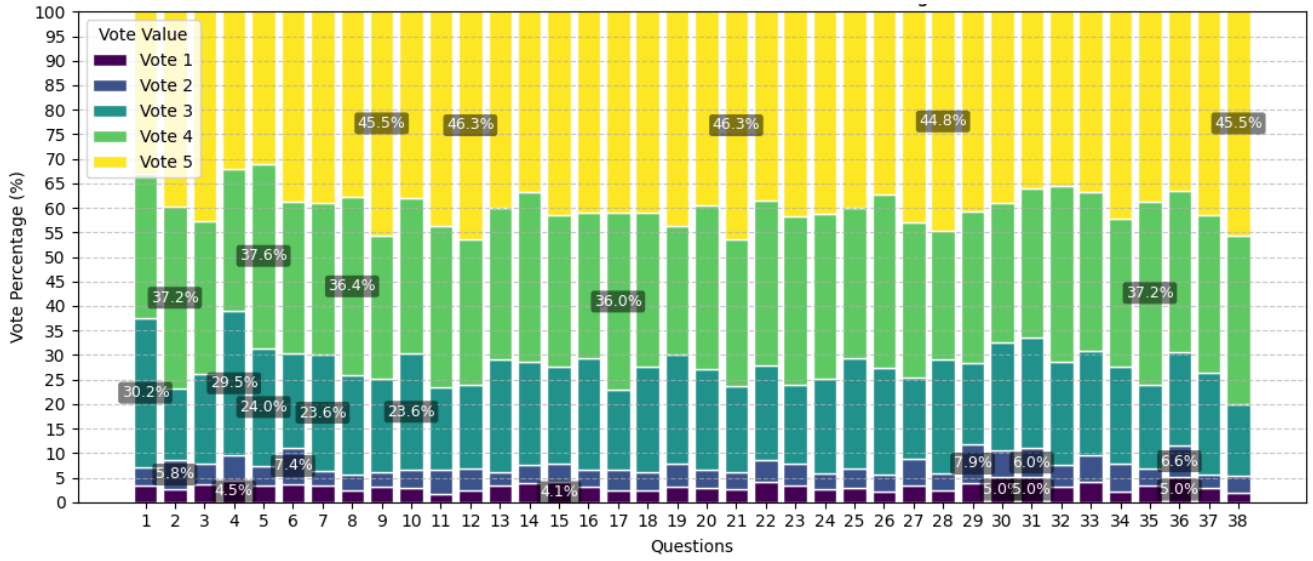
TABLE I: Highest and Lowest Averages

Highest			
S. N.	**Question Number (Q)**	**Mean ($\bar{x}$)**	**Std. Dev. (σ)**
1	38	4.18	0.94
2	21	4.14	1.00
3	12	4.13	1.01
4	11	4.12	0.97
5	9	4.11	1.02

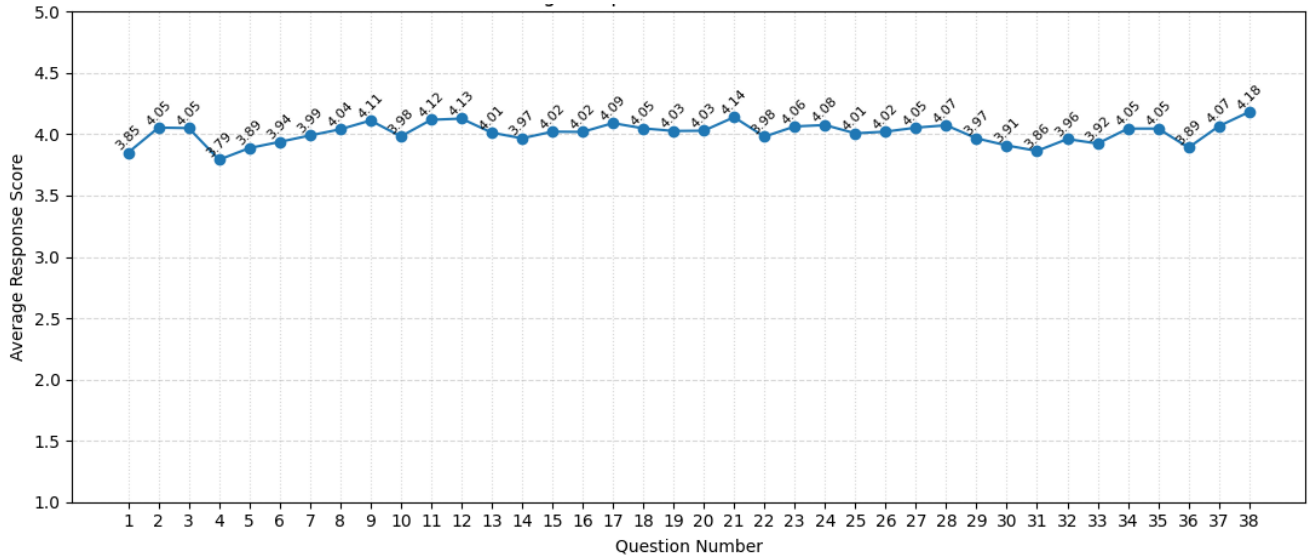
Lowest			
S. N.	**Question Number (Q)**	**Mean ($\bar{x}$)**	**Std. Dev. (σ)**
1	4	3.79	1.09
2	1	3.85	1.03
3	31	3.86	1.12
4	5	3.89	1.00
5	36	3.89	1.12

The results of the analysis reveal significant patterns of consistency and variation in user experience. An examination of the standard deviation values shows that there are varying levels of consensus in user perceptions of specific app features. As seen in Table I, even the questions with the lowest mean of 3.8 and above indicate that the application generally received a passing grade from users in all dimensions.

The responses to question Q21 ("It provides practical language skills that I can use in real life") yielded $\bar{x} = 4.14$ and $\sigma = 1.00$, representing one of the strongest aspects of the application. This result demonstrates that the application succeeds in developing language skills that users can directly apply in their daily lives, beyond the mere transmission of theoretical knowledge. The effective acquisition of practical language skills indicates that the application adopts a functional approach to language teaching, emphasizing knowledge that is usable in real communication contexts. This finding highlights the high pedagogical value of the application and



(a)



(b)

Fig. 2: (a) Percentage distributions and (b) mean values of the responses to the survey questions.

shows that users derive tangible benefits from the learning process. The emphasis on language skills applicable to real-life contexts aligns with modern language teaching methodologies and demonstrates the application's successful reflection of contemporary educational paradigms. This feature enhances users' learning motivation, contributing to long-term success.

Questions Q12 ($\bar{x} = 4.13$, $\sigma = 1.01$) and Q11 ($\bar{x} = 4.12$, $\sigma = 0.97$) pertain to font style and size, and their inclusion among the highest averages indicates that the application's typography is generally well-received. The high $\bar{x}$ value for Q9 ($\bar{x} = 4.11$, $\sigma = 1.02$) suggests that the application instructions are also perceived as clear. However, although $\mu > 3$, the questions with the lowest $\bar{x}$ values, Q4 ($\bar{x} = 3.79$), Q1 ($\bar{x} = 3.85$), and Q5 ($\bar{x} = 3.89$), reflect user perceptions about the application's design and indicate a need for improvement.

Questions Q31 ($\bar{x} = 3.86$, $\sigma = 1.12$) and Q36 ($\bar{x} = 3.89$, $\sigma = 1.12$) have low $\bar{x}$ values but high σ values, suggesting that users do not agree on these aspects. These questions focus on the application's "study reward system" and "regular usage" features, providing suggestions for enhancements to make the application more engaging.

Within the scope of the study, separate analyses were also conducted for the sub-sections within the questionnaire, and the scores obtained by different sections are shown in Figure 3.

In Figure 3, it can be observed that all sub-sections have a high mean score of approximately $\bar{x} \approx 4$. While all averages are close to each other, the highest mean score is $\bar{x} = 4.05$ with a standard deviation of $\sigma = 1.03$, achieved in the "Overall Satisfaction" section. This indicates that the application has

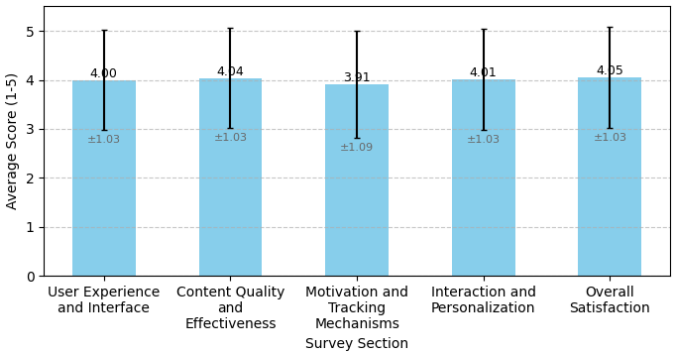


Fig. 3: Average scores and standart deviation by survey section.

generally received a passing grade from all users. The lowest average score, however, was recorded in the "Motivation and Tracking Mechanisms" section ($\bar{x} = 3.91$, $\sigma = 1.09$). The motivational features of the application can be further improved. Below, a detailed analysis of the key findings, structured according to thematic categories, is presented.

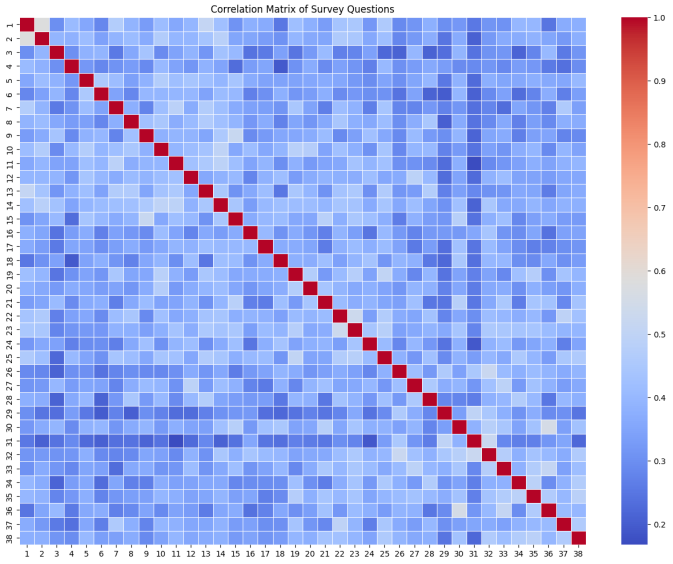
- **User Experience and Interface (Questions 1–13):** The findings indicate that users are generally satisfied with features such as interface design, visuals, and the clarity of commands. With an average score of $\bar{x} = 4.00$ and a standard deviation of $\sigma = 1.03$, the application provides a satisfactory experience and interface. Scores in this section range from 3.79 to 4.13, with "A good font size is used in the application" ($\bar{x} = 4.13$) receiving the highest score. However, "I do not encounter technical issues while navigating the application" ($\bar{x} = 3.79$) has the lowest score. The standard deviation $\sigma = 1.03$ indicates that user experiences are generally consistent.
- **Content Quality and Effectiveness (Questions 14–29):** Users show high satisfaction with aspects such as content coverage, game suitability, and gamification elements. Average scores range from $\bar{x} = 3.97$ to $\bar{x} = 4.14$, with "It provides practical language skills that I can use in real life" ($\bar{x} = 4.14$) receiving the highest score. Conversely, "The language education content provided in the application is sufficient and comprehensive" and "Listening activities help me understand different accents" ($\bar{x} = 3.97$) have the lowest scores. These results indicate a need for further development of educational activities and improvement of listening exercises. The standard deviation $\sigma = 1.03$ suggests that content quality and effectiveness are consistent across users.
- **Motivation and Tracking Mechanisms (Questions 30–32):** While evaluations of motivational elements and tracking mechanisms are generally positive, there is potential for improvement in these areas. Average scores range from $\bar{x} = 3.86$ to $\bar{x} = 3.96$, with "Progress stars or leveling systems contribute to my learning process" ($\bar{x} = 3.96$) achieving the highest score. The standard deviation $\sigma = 1.09$ indicates individual differences in user experiences with motivational features.
- **Interaction and Personalization (Questions 33–35):** Users' opinions on interaction and personalization features are generally positive. Average scores range from $\bar{x} = 3.92$ to $\bar{x} = 4.05$. The questions "Interactive activities (e.g., listening exercises) for language practice are sufficient" and "Vocabulary repetitions and tests are tailored to my personal learning needs" ($\bar{x} = 4.05$) received the highest scores. The standard deviation $\sigma = 1.03$ indicates consistency in experiences in this area.
- **Overall Satisfaction (Questions 36–38):** Questions related to overall satisfaction show that users generally like the application. Average scores range from $\bar{x} = 3.89$ to $\bar{x} = 4.18$, with "I think the application is generally an effective language learning tool" ($\bar{x} = 4.18$) receiving the highest score. The standard deviation $\sigma = 1.03$ indicates consistent experiences in this area.

The results reveal that users are satisfied with the visual and functional design of the app, but improvements are needed in areas such as listening activities, motivational elements and technical stability. Overall satisfaction is quite high, with a large proportion of respondents tending to recommend the app and use it regularly. These findings suggest that the app is recognized as a successful educational tool.

Correlation analysis was also performed between questions and sections and the correlation matrices are shown in Figure 4, respectively.

The correlation matrices shown in Figure 4 generally indicate that the subcategories are mostly moderately to strongly positively correlated with each other. The strongest relationship in this matrix was found between "User Experience and Interface" and "Content Quality and Effectiveness" ($r = 0.839$). This suggests that the user interface and the quality of content are highly interdependent in shaping user perception. On the other hand, the weakest relationship was identified between "Motivation and Tracking Mechanisms" and "Interaction and Personalization" ($r = 0.579$). Although this relationship is weaker compared to others, it remains significant. The relationships between the subcategories are as follows.

- **User Experience and Interface with Others:**
  - **Content Quality and Effectiveness** ($r = 0.839$)**:** There is a strong positive relationship between the two. User experience and interface are directly related to the quality and effectiveness of the content. Users may perceive the content as higher quality when they have a good interface experience.
  - **Motivation and Tracking Mechanisms** ($r = 0.576$)**:** There is a moderate relationship between the two. User experience is connected to motivation and tracking mechanisms, though this relationship is weaker.
  - **Interaction and Personalization** ($r = 0.637$)**:** There is a moderate relationship between the two. Personalization and interaction can meaningfully influence



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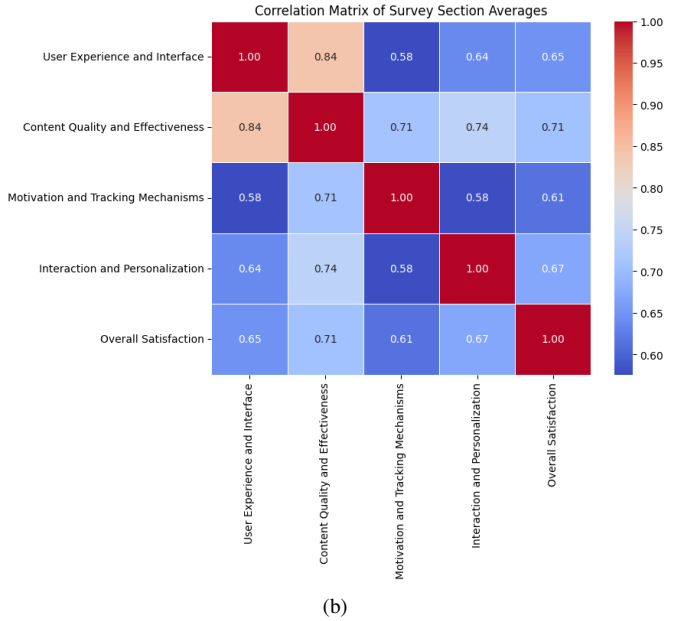

(b)

Fig. 4: Correlation matric of (a) survey questions and (b) survey section averages.

user experience.

  - **Overall Satisfaction** ($r = 0.648$)**:** There is a moderately strong relationship between the two. A meaningful connection exists between user experience and overall satisfaction.

- **Content Quality and Effectiveness with Others:**
  - **Motivation and Tracking Mechanisms** ($r = 0.71$)**:** There is a strong positive relationship between the two. Content quality is directly related to user motivation and tracking mechanisms.
  - **Interaction and Personalization** ($r = 0.741$)**:** There is a strong positive relationship between the two. Content quality has a strong connection with personalization and interaction.
  - **Overall Satisfaction** ($r = 0.708$)**:** There is also a strong positive relationship between the two. Content quality has a meaningful impact on overall satisfaction.

- **Motivation and Tracking Mechanisms with Others:**
  - **Interaction and Personalization** ($r = 0.579$)**:** There is a moderate positive relationship between the two. A clear connection exists between motivation mechanisms and personalization.
  - **Overall Satisfaction** ($r = 0.613$)**:** There is a moderate positive relationship between the two. User motivation is related to overall satisfaction.

- **Interaction and Personalization with Overall Satisfaction:**
  - **Overall Satisfaction** ($r = 0.672$)**:** There is a moderately strong positive relationship between the two. Personalization and interaction have a meaningful impact on overall satisfaction.

The correlation results show that improvements in highly correlated areas such as "User Experience" and "Content Quality" can have a positive impact on other sub-headings. These links can be strengthened by focusing on areas with lower correlations (e.g. "Motivation and Tracking Mechanisms" and others). Given that the sub-headings are interrelated, it would be useful to address them together to have the greatest impact on overall satisfaction.

V. Discussion

The findings of this study highlight the effectiveness of integrating gamification and mobile learning (MALL) into language education, as demonstrated by the positive user feedback on the "Foreign Language Gamification" application. The high mean scores across various survey sections, particularly in "Overall Satisfaction" ($\bar{x} = 4.05$) and "Content Quality and Effectiveness" ($\bar{x} = 4.14$ for practical language skills), underscore the app's success in meeting user expectations. These results align with existing literature, which emphasizes the motivational and pedagogical benefits of gamified learning environments [5], [8]. The strong correlation ($r = 0.839$) between user experience and content quality further supports the interdependence of these factors in shaping positive learning outcomes.

The consistently high mean scores across all questionnaire sections (ranging from 3.79 to 4.18) indicate strong user acceptance of the gamified language learning application. The highest-rated aspect, "The app is an effective language learning tool in general" ($\bar{x} = 4.18$, $\sigma = 0.94$), suggests that users perceive tangible educational value in the application. This finding aligns with previous research by Su and Cheng [5], who demonstrated that mobile gamification systems significantly improve learning motivation and achievements.

The strong positive correlation between "User Experience and Interface" and "Content Quality and Effectiveness" ($r =$

0.839) highlights the critical interdependence between technical design and educational content. This relationship suggests that successful language learning applications must excel in both technical implementation and pedagogical content delivery, rather than focusing on one aspect at the expense of the other.

However, the study also identifies areas for improvement. The relatively lower scores in "Motivation and Tracking Mechanisms" ($\bar{x} = 3.91$) and technical issues during navigation ($\bar{x} = 3.79$) suggest that enhancements in reward systems and app stability could further elevate user engagement. These findings resonate with prior research [10], [12], which notes the importance of seamless functionality and motivational triggers in sustaining long-term use of educational apps. Additionally, the variability in responses to listening activities ($\bar{x} = 3.97$) indicates a need for more diverse and adaptive content to cater to different learning preferences.

Several limitations should be acknowledged in interpreting these results. The study relies on self-reported user perceptions rather than objective learning outcome measurements. Participants used the application for approximately two months, which may not capture long-term engagement patterns or learning effectiveness. The study focused on users aged 14-25, limiting generalizability to other age groups. While the study included international participants, it did not specifically analyze cultural differences in responses or preferences. Future research could expand the demographic scope and incorporate objective performance metrics to validate self-reported outcomes. Despite these limitations, the results affirm the app's potential as a scalable and engaging tool for language learning, particularly for digital-native learners.

VI. Conclusion

This study demonstrates that gamified mobile applications can significantly enhance language learning by combining interactive design, practical content, and motivational elements. The "Foreign Language Gamification" app successfully addresses key aspects of user experience, content effectiveness, and overall satisfaction, making it a valuable resource for modern learners. The integration of gamification principles, such as rewards and progress tracking, aligns with contemporary pedagogical strategies and fosters a learner-centered environment.

The key findings indicate that users perceive the application as an effective language learning tool ($\bar{x} = 4.18$), demonstrating the successful integration of gamification and mobile learning technologies. The application excels in providing practical language skills applicable to real-life situations ($\bar{x} = 4.14$), addressing a critical need in language education. The combination of user interface design and content quality creates a synergistic effect that enhances overall user satisfaction, as evidenced by their strong correlation ($r = 0.839$). The consistent positive responses from participants across three different countries suggest broad international applicability of the gamified learning approach. While generally successful, the application would benefit from improvements in technical stability and personalized motivation mechanisms.

Acknowledgment

This study was supported by the Erasmus+ Program (KA220-SCH- Cooperation partnerships in school education) of the European Union under grant number 2023-1-HU01-KA220-SCH-000156504 (Project name: Foreign Language Gamification - Idegen Nyelv Tanulása Játékok Bevonásával). However, the European Commission and the Hungarian National Agency cannot be held responsible for any use that may be made of the information contained herein.

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