



The Effect of Mobile-Assisted Language Learning (MALL) on Grammar Proficiency and Learning Motivation

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Abstrak: Penelitian ini bertujuan untuk menganalisis pengaruh penerapan Mobile-Assisted Language Learning (MALL) dalam meningkatkan keterampilan tata bahasa dan motivasi belajar mahasiswa di Fakultas Ushuluddin, UIN Imam Bonjol Padang. Penelitian ini menggunakan desain eksperimen dengan pendekatan pre-test dan post-test, yang melibatkan dua kelompok sampel: kelompok eksperimen yang menggunakan MALL dan kelompok kontrol yang mengandalkan metode konvensional. Hasil penelitian menunjukkan peningkatan signifikan dalam keterampilan tata bahasa mahasiswa pada kelompok eksperimen, dengan rata-rata skor post-test mencapai 82,3, dibandingkan dengan rata-rata skor kelompok kontrol yang hanya 74,5. Selain itu, 83% mahasiswa dalam kelompok eksperimen melaporkan bahwa penggunaan MALL berkontribusi pada peningkatan motivasi belajar mereka, sementara 76% merasa bahwa MALL memudahkan pemahaman materi tata bahasa. Meskipun demikian, penelitian ini juga mencatat beberapa tantangan, seperti keterbatasan akses internet dan proses adaptasi terhadap teknologi pada tahap awal implementasi. Secara keseluruhan, temuan ini menunjukkan bahwa MALL memiliki pengaruh positif terhadap keterampilan tata bahasa dan motivasi belajar mahasiswa. Namun, implementasi MALL yang optimal memerlukan dukungan infrastruktur yang memadai serta pelatihan intensif bagi dosen dan mahasiswa. Penelitian selanjutnya disarankan untuk mengembangkan aplikasi MALL yang lebih stabil dan mengeksplorasi potensinya dalam meningkatkan keterampilan bahasa lainnya, seperti berbicara dan menulis.

Kata Kunci: MALL, tata bahasa, motivasi belajar.

This study aims to analyze the impact of Mobile-Assisted Language Learning (MALL) on enhancing grammar skills and learning motivation among students at the Faculty of Ushuluddin, UIN Imam Bonjol Padang. The research employs an experimental design with a pre-test and post-test approach, involving two sample groups: the experimental group using MALL and the control group relying on conventional methods. The results demonstrate a significant improvement in grammar skills among students in the experimental group, with an average post-test score of 82.3, compared to the control group's average score of 74.5. Furthermore, 83% of students in the experimental group reported that MALL contributed to an increase in their learning motivation, while 76% felt that MALL facilitated better comprehension of grammar material. Despite these positive outcomes, the study also highlights challenges, including limited internet access and the initial adaptation to technology. Overall, the findings suggest that MALL has a positive impact on both grammar skills and learning motivation. However, optimal implementation of MALL requires adequate infrastructure support and intensive training for both instructors and students. Future research is recommended to develop more stable MALL applications and to explore their potential in enhancing other language skills, such as speaking and writing.

Keywords: MALL, grammar, learning motivation.

1. INTRODUCTION

Technology has revolutionized various aspects of life, including education, by offering innovative solutions for more effective and efficient learning. In the context of language learning, Mobile-Assisted Language Learning (MALL) has emerged as an increasingly popular approach, leveraging mobile devices to create flexible, personalized, and interactive learning experiences. This approach allows students to access learning materials anytime and anywhere, thereby enhancing their engagement in the learning process (Gonulal, 2019; Zhen & Hashim, 2022). One of the key aspects of language learning that can be optimized through MALL is grammar mastery, which is an essential component for effective speaking and writing skills.

Grammar mastery serves as a fundamental element in language learning, as it provides the foundation for effective communication in both written and spoken forms. Proper grammar usage enables learners to express ideas clearly and enhances the quality of communication across various contexts. In the digital era, technology offers new opportunities to improve grammar skills through innovative approaches like MALL. This approach provides features such as real-time feedback and interactive exercises designed to boost students' engagement in the learning process (Amalia, 2023). Kukulska-Hulme and Viberg (2018) further highlight that the integration of technology, particularly through mobile platforms, can enhance students' motivation and create a more flexible, personalized learning experience tailored to individual needs. With its accessibility and adaptability, MALL has the potential to revolutionize how students develop grammar skills,

positioning it as a relevant approach in contemporary language education.

According to Zhen and Hashim (2022), MALL enriches students' learning experiences by providing diverse educational media, including app-based grammar exercises, that support self-directed learning. Similarly, Amalia (2023) asserts that MALL fosters a more adaptive and personalized learning environment, enabling students to learn according to their preferences and styles. Despite the growing recognition of MALL's potential in language learning, its application in religious higher education contexts remains limited.

At the Faculty of Ushuluddin, UIN Imam Bonjol Padang, the utilization of MALL to support language learning, particularly grammar mastery, has yet to be fully integrated. Religious higher education institutions have specific needs, such as grammar instruction for analyzing religious texts, which often involve unique linguistic complexities. Therefore, this study aims to evaluate the impact of MALL on improving students' grammar skills at the Faculty of Ushuluddin, UIN Imam Bonjol Padang. Furthermore, it seeks to explore the extent to which MALL can enhance students' motivation in learning language, particularly in grammar-focused courses.

By providing a deeper understanding of the potentials and challenges of MALL, this study aspires to contribute significantly to the development of more effective language learning methods tailored to the context of religious higher education. Additionally, the findings are expected to enrich the literature on technology integration in religious education and serve as a practical reference for curriculum development and teaching strategies that leverage technology to enhance students' grammar skills in this unique educational setting.

2. REVIEW

Mobile-Assisted Language Learning (MALL) has emerged as a rapidly developing approach to language learning, fueled by the ongoing advancements in mobile technology. This approach leverages mobile devices such as smartphones and tablets to support more flexible, interactive, and independent language learning processes (Gonulal, 2019). MALL enables language learning to take place anytime and anywhere, providing students with easy access to various learning materials that enhance their understanding of the language, including grammar exercises, videos, and podcasts (Zhen & Hashim, 2022). The use of mobile devices in language learning offers significant advantages, including flexibility in terms of time and location, self-directed learning, and the ability to access content at any given moment. This flexibility allows students to engage with language learning materials, including grammar exercises, interactive language apps, and multimedia resources, at their own pace and according to their individual needs (Zhen & Hashim, 2022).

MALL promotes adaptive and personalized learning, helping students select materials that align with their needs and learning styles. The interactive nature of mobile-based learning applications has a significant impact on language skills, particularly grammar, through engaging features and exercises (Shuib et al., 2015). Research has shown that mobile learning applications can improve grammar proficiency by offering interactive exercises that facilitate immediate error correction, thereby enhancing students' understanding of language rules. Shuib et al. (2015) found that mobile learning applications effectively improve grammar skills by promoting active engagement in the learning process. Furthermore, Fučeková and Metruk (2018) emphasized the value of instant feedback provided by MALL applications, enabling students to

correct mistakes immediately, reinforcing their understanding of grammar.

In addition, Jeong (2022) highlighted the importance of learner autonomy in MALL, which allows students to take charge of their learning, adjust strategies, and improve motivation. This self-directed approach also leads to more continuous practice, which is vital in enhancing grammar skills. Vu (2023) observed that apps such as LearnEnglish Grammar significantly improve grammar accuracy among high school students, demonstrating their effectiveness compared to traditional methods. In this context, MALL offers students an opportunity to engage in continuous practice, improving their grammar skills in a more dynamic and engaging way.

MALL not only enhances grammar proficiency but also strengthens students' communication competence. According to Kukulska-Hulme and Viberg (2018), digital platforms, including mobile apps, foster greater student engagement and communication skills through collaborative tools such as social media and language learning apps. Gueorguiev (2016) further noted that MALL applications encourage collaborative learning, where students can share resources, provide feedback on grammar, and learn from peers, enriching the learning experience.

The impact of MALL on students' motivation to learn is also significant, as it addresses several key factors that enhance the learning process. Firstly, the flexibility of MALL allows students to access learning materials anytime and anywhere, according to their schedule and pace. This autonomy increases student confidence, as they can control their learning process, promoting independent study and a more motivated approach to language acquisition. Zhen and Hashim (2022) emphasized that MALL enables students to study independently and continuously, improving grammar skills through repeated practice at their own pace, free from the constraints of traditional classroom settings.

Secondly, MALL allows students to make the most of their free time, turning otherwise idle moments such as during commutes or breaks into opportunities for language practice. This efficient use of time boosts the frequency of practice, enhancing grammar learning and reinforcing students' understanding of the language (Gonulal, 2019). The ability to study outside formal class hours and incorporate learning into daily routines promotes regular engagement with the material, leading to improved grammar skills.

Thirdly, the provision of instant feedback plays a crucial role in accelerating the learning process. Fučeková and Metruk (2018) explained that instant feedback provided by MALL apps enables students to identify and correct mistakes immediately, facilitating faster comprehension and application of grammatical rules. This real-time correction process is especially effective in grammar learning, where accuracy is paramount. Instant feedback allows students to focus on areas needing improvement, reinforcing their understanding of grammar and preventing the formation of bad habits.

Finally, MALL fosters increased self-confidence in language use. With mobile-based learning, students can practice independently in a less formal, pressure-free environment. This autonomous learning helps students develop their language skills more confidently, without the fear of immediate judgment in a classroom setting. Jeong (2022) argued that MALL encourages learners to take responsibility for their learning, offering them greater control over their progress and improving their confidence in using the language. As students gain confidence in their ability to learn at their own pace, they are more likely to engage actively in speaking and writing, further strengthening their language skills.

In conclusion, MALL not only significantly enhances grammar proficiency but also contributes to an overall improvement in students' language learning

experience. By integrating mobile technology into the learning process, MALL provides opportunities for self-directed, flexible, and interactive learning, enabling students to access content at their convenience and work at their own pace. The instant feedback, continuous practice, and personalized learning features of MALL applications facilitate better understanding and mastery of grammar. Moreover, MALL increases motivation, fosters greater engagement, and promotes sustained learning, ultimately improving students' language skills and their confidence in using the language. Through the implementation of MALL, students are empowered to take control of their learning, which accelerates their language acquisition and enhances their overall educational experience.

Conceptual Framework of the Study

This study aims to investigate the impact of Mobile-Assisted Language Learning (MALL) on improving students' grammar skills at the Faculty of Ushuluddin, UIN Imam Bonjol Padang, with a particular focus on courses that emphasize mastery of language structure. MALL, which utilizes mobile technology such as learning applications and mobile devices, offers a flexible and interactive learning approach, allowing students to access learning materials anytime and anywhere. According to Stockwell (2010), MALL provides opportunities for more dynamic and contextualized learning, supporting a more adaptive learning process that meets the individual needs of students. As Kukulska-Hulme and Shield (2008) explain, mobile technology enables the integration of contextualized learning with the development of more independent skills, giving students greater control over how they learn.

The central concept within the conceptual framework of this study is the enhancement of students' grammar skills, involving the understanding and application of grammatical rules within both academic

and religious contexts. As Ellis (2006) asserts, effective grammar learning encompasses not only knowledge of linguistic rules but also their application in relevant and authentic contexts. The theory of self-directed learning (Knowles, 1975) serves as a fundamental basis for this research, wherein students take an active role in planning and managing their learning process, utilizing technology to deepen their understanding of grammar content. In line with Knowles' perspective, self-directed learning emphasizes fostering students' independence in managing their learning, a process that can be strengthened through the use of technology that supports personalized learning.

Furthermore, this study also seeks to examine the role of MALL in enhancing students' motivation to study grammar, particularly in the context of religious language learning, which often involves complex texts with linguistic structures that require precision. Ryan and Deci (2000), in their theory of intrinsic motivation, argue that the use of technology in learning can increase students' intrinsic motivation, especially when they feel they have greater control over their learning process. In this context, MALL has the potential to create a more engaging and relevant learning experience, increasing students' interest in studying grammar in-depth.

According to student engagement theory (Kuh, 2009), high levels of engagement in the learning process can improve learning outcomes, both in terms of academic achievement and intrinsic motivation. Therefore, this study posits that the use of MALL not only contributes to the improvement of grammar skills but also has the potential to increase students' motivation to engage more actively in language learning. This research will explore how the use of mobile-based language learning applications can stimulate students' interest, provide instant feedback, and create a more personalized and enjoyable learning experience. As Godwin-Jones (2011) notes, the real-time

feedback provided by mobile applications can expedite the learning process, allowing students to correct mistakes immediately, which in turn enhances the effectiveness of learning.

Thus, the conceptual framework of this research encompasses two main dimensions: the development of grammar skills through the MALL approach and the enhancement of students' motivation to study grammar. Together, these dimensions can support the quality of language learning in higher education, particularly in religious studies. As Reinders and White (2011) conclude, the integration of technology in education, including MALL, can improve the learning experience, making it more efficient and enjoyable, ultimately improving learning outcomes and strengthening student engagement in the learning process.

3. METHODOLOGY

This research employed a quantitative methodology utilizing an experimental design to assess the efficacy of mobile-assisted language learning technology (MALL) in enhancing students' grammatical competencies. The experimental framework is employed to investigate the influence of specific interventions on various variables within a controlled environment (Sugiyono, 2020). The research design implemented was a group pre-test post-test model, whereby the research group initially underwent a pretest to gauge their grammatical abilities prior to the intervention. Following the application of MALL in the instructional process, a posttest was administered to evaluate the advancement of grammatical skills subsequent to the intervention. This methodological framework enabled the researcher to discern significant alterations in the grammatical abilities of students as a direct consequence of MALL implementation.

The subjects of this investigation comprised students from the Faculty of Ushuluddin at UIN Imam Bonjol Padang,

selected through purposive sampling techniques. The selection criteria for subjects included enrollment in courses specifically concentrated on the mastery of grammar. The sample was categorized into two distinct groups: the experimental group and the control group, with each group comprising 30 students, thereby resulting in a total sample size of 60 participants.

The instruments utilized in this research encompassed a grammar assessment specifically constructed to evaluate the grammatical competence of the students, which was administered at both pre- and post-intervention stages (pretest and posttest) to ascertain the advancement of their linguistic capabilities. Furthermore, a questionnaire designed to assess students' motivation and perceptions was employed to determine their viewpoints regarding the application of MALL within the educational framework. Participatory observations and semi-structured interviews were simultaneously executed to explore the facilitators and barriers encountered in the implementation of MALL. The grammar assessment was formulated in accordance with the established curriculum materials and underwent validation by language education experts to guarantee the instrument's reliability and validity, thus rendering the findings credible and accurate.

The data collection procedures for this study were executed through multiple phases. The preparatory phase encompassed the development of mobile-based learning applications and the instructional materials employed by the experimental group, alongside the dissemination of information to faculty and students regarding the utilization of MALL. Subsequently, a pretest was administered to evaluate the initial grammatical competencies of both groups. The intervention phase persisted for a duration of 8 weeks, during which the experimental group engaged in MALL-based learning incorporating interactive tasks via mobile applications, while the control group

adhered to traditional pedagogical methods. Following the intervention, a posttest was conducted to assess the variations in grammatical skills between the two groups. Ultimately, interviews and observations were executed with several students and faculty members to elucidate their experiences, challenges, and the enabling and constraining factors associated with the implementation of MALL.

The data obtained were analyzed with descriptive and inferential statistics. Descriptive statistical analysis was used to describe the mean and distribution of pretest and posttest scores of both groups. To test the effectiveness of the intervention, an independent sample t-test was used to compare the difference in posttest scores between the experimental and control groups. In addition, qualitative data from questionnaires and interviews were analyzed using thematic analysis to identify supporting and inhibiting factors in the implementation of MALL.

With this systematic research procedure, the results obtained are expected to provide a clear picture of the effectiveness of MALL implementation and the challenges and opportunities faced in the context of religious higher education.

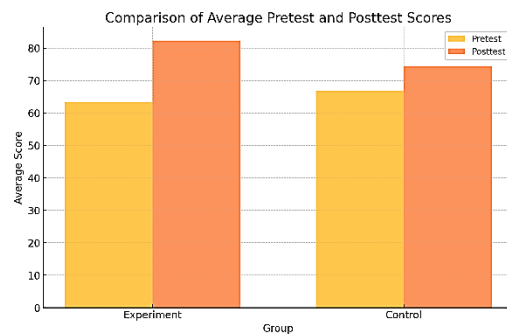
4. RESULTS AND DISCUSSIONS

Results

The descriptive results showed a clear difference between the average pretest and posttest scores in both the experimental and control groups. The average pretest score of the experimental group was 63.4, while the control group was slightly higher at 66.8. After the intervention, the posttest score of the experimental group increased to 82.3, while the control group reached 74.5. The significant difference in improvement between the two groups indicates that learning with MALL is able to have a greater effect on improving grammar skills than the conventional method.

The following is the descriptive data of the pretest and posttest showing the comparison of the average scores between the experimental and control groups in tabular format:

Group	Pretest	Posttest
Experiment	63,4	82,3
Control	66,8	74,5



T-Test Formula:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N(N-1)}}}$$

T: T-test value

M_d: Average difference between pretest and posttest (Mean Difference)

x_d: Deviation of each subject from the mean

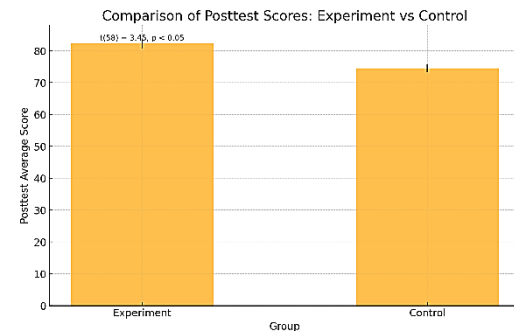
N: Number of subjects in the sample

In the experimental group, there was a notable enhancement from the pretest mean score of 63.4 to 82.3 in the subsequent posttest. Conversely, the control group also demonstrated an increase; however, this was comparatively lesser, rising from 66.8 in the pretest to 74.5 in the posttest. This disparity indicates that the group utilizing Mobile-Assisted Language Learning (MALL) attained a more significant advancement in grammatical competencies than that of the control group employing traditional instructional methodologies.

In order to determine whether the observed difference was statistically significant, an independent sample t-test

was performed on the posttest scores. The outcome of the analysis revealed a t-value of $t(58)=3.45$, $p<0.05$, indicating that there exists a statistically significant difference between the posttest scores of the experimental and control groups. These findings substantiate that the implementation of Mobile-Assisted Language Learning (MALL) is considerably more effective in enhancing grammar skills in comparison to conventional instructional methods.

The subsequent graph illustrates the comparative analysis of the mean posttest scores between the experimental and control groups, accompanied by the t-test value which serves as an indicator of statistical significance.

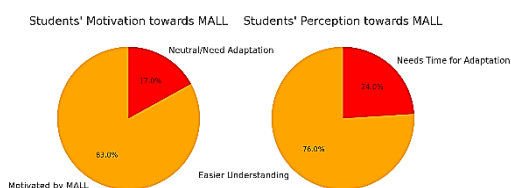


This graphical representation illustrates that the experimental group, exhibiting a mean score of 82.3, outperformed the control group, which attained an average of merely 74.5. The error bars represent the potential variability (standard deviation) within each group, thereby highlighting the reliability of the findings.

The statistical value of $t(58) = 3.45$, $p < 0.05$ substantiated that the disparity between the two groups was statistically significant. This reinforces the assertion that the utilization of Mobile-Assisted Language Learning (MALL) is more efficacious in enhancing grammatical competencies compared to traditional pedagogical approaches.

Drawing from the questionnaire data concerning students' motivation and

perception within the experimental group, it was indicated that 83% of participants observed an enhancement in their learning motivation attributed to the utilization of Mobile Assisted Language Learning (MALL). The respondents expressed that application-based learning facilitated a more interactive and readily accessible educational environment, thereby rendering the learning experience more pleasurable in comparison to traditional pedagogical approaches. Furthermore, 76% of the students articulated that MALL significantly simplified the comprehension of the grammatical concepts being instructed. Conversely, a minority of 24% of the students conveyed that they required additional time to acclimate to the implementation of this innovative technology. The explanation of Student Perceptions of MALL is illustrated in the subsequent diagram:



Based on the findings derived from interviews conducted with both students and educators, along with participatory observations, a variety of facilitators and impediments influencing the implementation of Mobile-Assisted Language Learning (MALL) in the context of grammar instruction have been identified.

A primary factor that enhances the effective deployment of MALL is the inherent flexibility regarding the timing and location of learning activities. Students are afforded the opportunity to engage in their studies at any time and in any location that aligns with their personal schedules and preferences, which significantly enhances their engagement and participation in the educational process. Furthermore, the applications utilized within MALL frameworks offer compelling interactive

features, such as gamification-oriented exercises and quizzes, which not only render the learning experience more enjoyable but also serve to incentivize students to undertake independent practice. From the perspective of educators, the capacity to deliver immediate feedback through these applications is a notable advantage. Educators can swiftly assess students' submissions and provide real-time corrections, thereby enabling students to rectify their errors promptly.

The implementation of Mobile-Assisted Language Learning (MALL) was met with a variety of challenges. A primary concern was the inadequacy of internet connectivity, as certain students experienced instability in their internet access at home or in their living environments. This constraint significantly impeded the effective utilization of the application and diminished the regularity of their educational pursuits. Furthermore, the struggle to adapt to technological tools presented difficulties for certain learners, particularly those unaccustomed to leveraging mobile devices for educational purposes. During the preliminary phases of deployment, some students required additional time to comprehend the functionality of the application and to acclimate to the novel pedagogical approaches. Technical complications within the application, including software bugs or operational failures, also interfered with the educational process and compromised the efficacy of the technological resources.

In summary, while the integration of MALL has demonstrated various notable advantages, obstacles such as inadequate internet access, challenges in technological adaptation, and technical malfunctions necessitate focused attention. Provision of infrastructural support and comprehensive training for both learners and educators is imperative to optimize the prospective advantages of MALL in forthcoming educational contexts.

Discussions

The findings of this study confirm that MALL has a positive impact on improving students' grammar proficiency. The significant increase in posttest scores of the experimental group compared to the control group indicates that MALL offers a more effective and flexible learning experience. These results align with previous research by Shuib et al. (2015) and Vu (2023), which demonstrated that mobile applications enhance grammar skills through immediate feedback and intensive interaction.

Furthermore, students' motivation increased due to the interactive features within the applications. This is consistent with the findings of Kukulska-Hulme and Viberg (2018), who highlighted that collaborative learning and social media-based activities can enhance students' motivation and engagement. However, challenges such as limited internet access and technical issues indicate that the successful implementation of MALL requires better infrastructure preparation.

In the context of higher religious education at UIN Imam Bonjol, the findings emphasize the importance of integrating technology with conventional teaching methods. This blended approach ensures that students can adapt more effectively and do not feel overwhelmed by the shift in learning strategies. The adaptation challenges observed in the study underscore the need for technical training and support for both instructors and students to ensure the optimal use of MALL.

Based on the empirical evidence presented, it can be inferred that Mobile-Assisted Language Learning (MALL) is instrumental in augmenting students' grammatical competence and possesses the capacity to enhance their intrinsic motivation towards language acquisition. The integration of this technological framework affords a degree of flexibility and fosters a more interactive educational experience, which not only fortifies

students' academic capabilities but also encourages learner independence. Nonetheless, the effective application of this technology necessitates the establishment of adequate infrastructural support, alongside comprehensive training and assistance for both educators and learners, to guarantee that the technology is employed to its optimal efficacy.

5. CONCLUSION

Based on the empirical evidence derived from this investigation, it can be inferred that the application of Mobile-Assisted Language Learning (MALL) significantly contributes to the enhancement of students' grammatical proficiency. This assertion is supported by the notable disparities observed between pretest and posttest scores, wherein the experimental group utilizing MALL exhibited a more pronounced advancement in comparison to the control group. Furthermore, the incorporation of MALL was found to positively influence students' motivational levels towards learning, given that mobile-based applications facilitate a more engaging, adaptable, and readily accessible educational experience. A substantial proportion of students articulated favorable attitudes regarding the integration of MALL in grammar instruction, notwithstanding that some encountered adaptation difficulties during the initial phases of its implementation.

However, the study also identified several challenges, such as limited internet access and technical issues within the applications, which affected the smoothness of the learning process. Furthermore, adaptation difficulties among students unfamiliar with mobile technology as a learning tool also posed challenges. Therefore, infrastructure support and training for both instructors and students are essential to maximize the benefits of MALL, particularly in the context of higher religious education.

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