CONSTRUCTION AND EVALUATION OF MALL-BASED LEARNING MATERIALS WITH THE INTEGRATION OF BUSINESS CASE STUDIES TO ENHANCE ENGLISH READING COMPREHENSION FOR MANAGEMENT STUDENTS

Ella Aprilia Tiana
Master's Program in English Education, Universitas Muhammadiyah Gresik, Indonesia
Email: apriliaella99@gmail.com

Nirwanto Maruf
Master's Program in English Education, Universitas Muhammadiyah Gresik, Indonesia
Email: nirwanto.maruf@umg.ac.id

The purpose of this study was to develop and assess MALL (Mobile-Assisted Language Learning)-based learning materials, integrated with business case studies, to enhance English reading comprehension among management students. The research aimed to address the specific language needs of these students in the business context. Employing a mixed-methods design, the study used Pre-test and Post-test Assessments for quantitative analysis and Semi-structured interviews for qualitative insights. Results showed a statistically significant improvement in reading comprehension, with a t-value of 8.45 and a p-value of less than 0.001, indicating that the improvement was a direct effect of the MALL-based intervention. The Cohen's d effect size was 1.2, suggesting a strong impact on students' reading comprehension skills. Qualitative data revealed increased engagement and motivation due to the interactive features of the MALL applications, and the relevance of the reading materials to future professional roles. However, usability challenges, such as navigation difficulties and application performance issues, were also noted. These challenges indicate a need for further refinement of the application design. Overall, integrating business case studies into MALL-based materials significantly enhances English reading comprehension for management students, with implications for curriculum development and instructional design in specialized language education contexts.

Keywords: *Mobile-Assisted Language Learning (MALL); English reading comprehension; business case studies; management education; language proficiency.*

INTRODUCTION

In the rapidly evolving global business environment, proficiency in English reading comprehension has become a crucial skill (Anita & Wahyudi, 2021; Dardjito, 2019; Lawrence et al., 2022; Zuhri et al., 2021), particularly for management students who are preparing to enter a highly competitive and interconnected business world. English, as the primary language of international business, requires more than just basic understanding—it necessitates the ability to effectively interpret and engage with business-related texts (Andersen, 1998; Kim, 1905; Mu & Yu, 2023; Maruf et al., 2021). Despite its importance, many management students struggle with English reading comprehension, facing significant difficulties due to their limited language proficiency. These challenges are often compounded by the need to understand texts that are not always straightforward, making it difficult for students to fully grasp and apply the content (Parnawati & Ulinuha, 2019; Maruf & Helingo, 2022).

This issue is particularly pressing for students who lack strong English skills, as their ability to comprehend and analyze business materials can significantly impact their academic performance and future career prospects. The difficulties encountered in reading comprehension can impede their ability to engage with essential business concepts and apply them effectively in real-world situations. Therefore, addressing these challenges through targeted educational strategies is vital for improving their English reading comprehension and preparing them for the demands of the business world.

The challenges faced by management students in this domain highlight the need for innovative

educational approaches that address these barriers while aligning with the practical needs of the business environment. In this context, the integration of Mobile-Assisted Language Learning (MALL) with business case studies presents a promising solution (Nuraeni et al., 2020; Pengnate, 2018; Lin et al., 2020; Hsu et al., 2013; Maruf & Anjely, 2020). MALL, leveraging mobile technology to enhance language learning, offers flexible and accessible learning opportunities that can be tailored to individual needs (Khabiri et al., 2013; Takele et al., 2022; Hsu et al., 2013). By incorporating authentic business case studies into this approach, it is possible to provide students with relevant and contextualized learning experiences that improve their ability to analyze and understand business texts.

Several studies have highlighted the importance of addressing these challenges to improve English reading comprehension among students. For instance, research by Yu et al., (2022) entitle *Mobile-assisted or paper-based? The influence of the reading medium on the reading comprehension of English as a foreign language* provided valuable insights into the use of mobile-assisted language learning (MALL) in enhancing reading comprehension. Their study, published in *Computer Assisted Language Learning*, compared mobile-assisted reading with traditional paper-based reading. They found that while mobile-assisted reading might not always achieve the same level of comprehension accuracy as paper-based methods, it offers notable benefits in terms of convenience and student engagement. The study indicated that mobile technologies could provide flexible access to learning materials, which might enhance the learning experience and address some of the barriers faced by students with lower proficiency.

Similarly, Hazaea & Alzubi (2016) entitle *The Effectiveness of Using Mobile on EFL Learners' Reading Practices in Najran University* explored the effectiveness of mobile technologies, specifically WhatsApp, in improving reading practices among English as a Foreign Language (EFL) students. Published in *English Language Teaching*, their research demonstrated that mobile applications, including WhatsApp, online dictionaries, and other digital resources, significantly contributed to better reading practices. However, the study also acknowledged some limitations in text analysis, highlighting the need for more comprehensive approaches to address various aspects of reading comprehension.

Building upon these findings, this research aims to advance the field by focusing specifically on management students with lower English proficiency. The study proposes a novel approach by integrating MALL with business case studies to enhance English reading comprehension. By using e-readers equipped with interactive features as Quizlet, Kindles, and Duolingo, combined with authentic business case studies, the research seeks to provide students with engaging and contextually relevant learning materials. This approach is designed to bridge the gap between theoretical knowledge and practical application, offering students a more effective way to improve their reading comprehension skills.

The integration of business case studies into MALL-based learning materials offers a dual benefit. Firstly, it provides a contextually rich environment for students to apply their language skills (Franklin & Harrington, 2019; Fitayanti, 2023; Mohamed et al., 2020), thereby making learning more engaging and relevant. Secondly, it aligns with the practical demands of the business world, equipping students with the skills necessary to interpret and respond to real-world business scenarios (Phillips & Klein, 2023; Telychko et al., 2023; Franklin & Harrington, 2019). By focusing on the intersection of language learning and business practice, this research aims to contribute to the development of more effective educational strategies that can better prepare students for the complexities of the global business landscape.

The significance of this research is underscored by the lack of comprehensive studies that explore the specific application of MALL with business case studies in the context of English reading comprehension for management students. While existing literature has provided valuable insights into the broader applications of mobile technology in language learning (Kacetl, 2018; Jiemsak, 2021; Shahzad et al., 2020), there remains a need for targeted research that addresses the unique challenges and requirements of business students. This study seeks to fill this gap by investigating how MALL-based learning materials, integrated with business case studies, can enhance English reading comprehension and provide a more contextualized learning experience.

By focusing on management students with lower English proficiency, this research seeks to offer a tailored educational solution that addresses their specific challenges. The use of interactive and contextualized materials aims to improve their ability to understand and analyze business texts,

thereby enhancing their overall reading comprehension skills. Additionally, the study explores students' experiences and perceptions of using these materials, providing insights into the effectiveness and practicality of the proposed approach.

In summary, the development and testing of MALL-based learning materials, incorporating authentic business case studies, represent a significant advancement in language education. This research aims to enhance English reading comprehension for management students by providing engaging and contextually relevant learning experiences. The outcomes of this study are expected to contribute valuable insights into the effectiveness of this innovative approach and support the ongoing development of more effective language learning strategies. By addressing the specific needs of management students and integrating mobile technology with practical business content, the research aspires to make a meaningful impact on their academic and professional readiness.

METHOD

This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches to thoroughly investigate the effectiveness of Mobile-Assisted Language Learning (MALL) materials with integrated business case studies in enhancing English reading comprehension among management students. The mixed-methods approach allows for a holistic examination of the research problem by combining numerical data with in-depth qualitative insights, providing a comprehensive understanding of the impact and student experiences related to the intervention (Timans et al., 2019b; Creswell, 2009; Taherdoost, 2022; Timans et al., 2019a).

The research design utilized is a pre-experimental design, specifically a single-group pre-test and post-test model. In this design, a single group of participants is assessed before and after the implementation of the MALL-based learning materials. This approach allows for the evaluation of changes in reading comprehension scores and the effectiveness of the intervention without the need for a separate control group (Lenhart et al., 2020); . The absence of a control group is acknowledged as a limitation; however, the focus is on measuring the direct impact of the intervention within the group itself.

The study is conducted at Universitas Muhammadiyah Gresik, focusing on the Faculty of Economics and Business, particularly the Management Department. The participants are selected using purposive sampling to ensure that they meet specific criteria relevant to the study. A total of 55 management students are identified as eligible for participation based on their active status, varying levels of English proficiency, and completion of at least two semesters of study. From this pool, 35 students are selected to participate in the study. The selection is based on their willingness to engage with the learning materials and their availability for the study duration.

The research utilized a variety of instruments to gather both quantitative and qualitative data. The primary instruments include: (1) *Pre-test and Post-test Assessments*. These assessments are designed to measure students' reading comprehension abilities before and after the implementation of the MALL-based learning materials. The tests are composed of passages related to business topics, with questions that evaluate comprehension, interpretation, analytical skills. The pre-test established a baseline measure of reading comprehension, while the post-test assesses any changes resulting from the intervention. (2) *Interviews*: Semi-structured interviews are conducted to gather qualitative data on students' experiences and perception of the MALL-based learning materials. The interviews are designed to explore students' views on the usability, effectiveness, and relevance of the materials, as well as their overall impact on their reading comprehension skills. (3) *MALL-Based Learning Materials*: The learning materials include e-reader application equipped with interactive features, Quizlet, Kindle, and Duolingo.

The implementation of the MALL-based reading activities was structured over a 8-week period. The aim was to enhance the English reading comprehension of management students with relatively low English proficiency. The procedure was carefully designed to integrate the use of various mobile applications to support students' reading activities. The weekly schedule is outlined as follows:

Week 1: Introduction to the Study and MALL. Applications: In the first week, students were introduced to the study's objectives, design, and the rules for participation. The instructor provided an overview of the MALL approach and demonstrated how the selected mobile applications, such as *Google Play Books, Pocket, Quizlet*, and *Scribd,* would be used to support their reading activities. Each student was guided through the process of installing and navigating these applications on their mobile devices. This week also included a

brief orientation on effective reading strategies and how to make the most of the digital tools provided.

Week 2: Pre-Test and Baseline Data Collection: During the second week, a pre-test was administered to assess the students' baseline reading comprehension levels. The pre-test included a series of reading passages followed by multiple-choice and open-response questions designed to measure their initial proficiency. The results of this pre-test would later be compared with the post-test outcomes to evaluate the effectiveness of the MALL interventions.

Weeks 3-8: Implementation of MALL-Based Reading Activities: Over the next six weeks, the core MALL-based reading activities were carried out, each week focusing on a different aspect of reading comprehension. The details of each week's activities are as follows:

Week 3: Students were assigned a reading passage through the Google Play Books app. The passage was selected from a business-related text, appropriate for their level, with embedded vocabulary assistance. After reading, students completed comprehension questions via Quizlet, which reinforced key concepts and vocabulary.

Week 4: The reading activity this week involved an article from Pocket, which allowed students to save and read content offline. The focus was on identifying the main ideas and supporting details. After reading, students participated in a discussion forum on the Scribd platform, where they could share insights and pose questions about the text.

Week 5: A more complex reading assignment was given via Scribd, where students accessed a case study related to management practices. The task emphasized critical thinking and inference-making. Comprehension was assessed through a set of open-response questions, encouraging deeper engagement with the text.

Week 6: Students utilized the *Oxford Learner's Bookshelf* to read a chapter from a textbook on business communication. The chapter included interactive features like quizzes and annotated notes. After completing the reading, students took a quiz in *Quizlet* designed to test their understanding of key concepts and terms.

Week 7: The reading focus shifted to current events, with students using *Newsela* to read a news article related to global business trends. The article was provided at a suitable reading level for the students. They were then required to summarize the article and discuss its implications in a virtual class discussion facilitated through *Google Play Books'* annotation features.

Week 8: This week focused on integrating and synthesizing information across multiple texts. Students were assigned a series of shorter articles from Pocket, which they were instructed to read and compare. They then completed a reflective essay, connecting themes and ideas across the different readings.

Week 9: Post-Test and Student Feedback: In the ninth week, students completed a post-test designed to assess the improvement in their reading comprehension skills after the MALL-based interventions. The test mirrored the pre-test in structure, allowing for a direct comparison of results. Additionally, students were asked to provide feedback on their experience with the MALL applications, discussing which tools they found most effective and how the approach impacted their learning.

Week 10: Focus Group Discussions: The final week was dedicated to qualitative data collection through focus group discussions. These sessions provided an opportunity for students to reflect on their overall experience and discuss the strengths and challenges of using MALL for reading comprehension. The insights gained from these discussions were invaluable for understanding the students' perceptions and informing future instructional strategies.

The data analysis for this study was conducted using both quantitative and qualitative methods to provide a comprehensive understanding of the effectiveness of Mobile-Assisted Language Learning (MALL) in improving English reading comprehension among management students. The analysis was designed to address the research objectives and to offer insights into the impact of the intervention on students' reading skills, as well as their experiences and perceptions.

The quantitative data were collected through pre-tests and post-tests administered before and after the implementation of MALL-based reading activities. These tests were designed to assess the students' reading comprehension skills. The data analysis followed these steps: (1) *Descriptive Statistics*: The first step in analyzing the quantitative data involved the calculation of descriptive statistics, including the mean, median, standard deviation, and range of scores for both the pre-test and post-test results. This provided an overview of the students' reading comprehension performance before and after the intervention. (2) *Inferential Statistics* which included *Paired t-Test*: To determine whether there was a statistically significant improvement in reading comprehension

scores from the pre-test to the post-test, a paired t-test was conducted. This test compared the means of the two sets of scores, allowing the researchers to evaluate the effectiveness of the MALL-based intervention. *Effect Size Calculation*: In addition to the paired t-test, the effect size was calculated using Cohen's d. This metric provided an indication of the practical significance of the observed changes in reading comprehension scores, helping to assess the strength of the intervention's impact. (3) *Subgroup Analysis*: To explore whether the intervention had varying effects on different subgroups of students, additional analyses were conducted based on factors such as initial English proficiency levels and engagement with the MALL applications. These subgroup analyses helped identify which groups of students benefited the most from the intervention and provided insights into tailoring future implementations.

The qualitative data were gathered through semi-structured interviews conducted at the end of the intervention. These interviews aimed to capture the students' experiences, perceptions, and attitudes toward using MALL applications for reading activities. The qualitative data analysis involved the following steps: (1) *Data Preparation*: The interview recordings were transcribed verbatim to ensure accuracy. The transcripts were then reviewed and anonymized to protect the participants' identities. Once prepared, the data were organized into manageable sections for coding and analysis. (2) *Thematic Analysis*: The qualitative data were analyzed using thematic analysis, a method suitable for identifying, analyzing, and reporting patterns (themes) within the data.

RESULTS AND DISCUSSION
Quantitative results
The results of the quantitative analysis revealed significant findings related to the effectiveness of the Mobile-Assisted Language Learning (MALL) intervention in improving English reading comprehension among management students. The analysis was conducted in three main phases: descriptive statistics, inferential statistics, and subgroup analysis, each contributing to a comprehensive understanding of the intervention's impact.

Table 1. *Descriptive statistics for pre-test and post-test score*

Statistic	Pre-Test	Post-Test
Mean	55.2	72.5
Median	56	74
Standard Deviation	6.8	7.3
Range	42 – 68	58 - 85

Table 1 shows that the analysis of pre-test scores indicated that the students had a relatively low baseline in reading comprehension. The mean score was 55.2 with a standard deviation of 6.8 indicating a moderate level of variability in initial reading comprehension abilities among the students. The median score was 56, with a range of 42 to 68. After the MALL-based intervention, the post-test results demonstrated a noticeable improvement in reading comprehension scores. The mean score increased to 72.5 with a standard deviation of 7.3. the median score was 74, with score ranging from 58 to 85. This shift in scores an overall enhancement in students' reading comprehension.

Table 2. *Paired t-test results for pre-test and post-test scores*

Statistic	Pre-Test
t-value	8.45
p-value	< 0.001
Cohen's d (Effect size)	1.2

Table 2 shows that a significant increase in reading comprehension scores from the pre-test to post-test, with a t-value of 8.45 and p-value of less than 0.001. this indicates that the improvement in reading comprehension was not due to random chance but was a direct results of the MALL-based intervention. Meanwhile the effect size, calculated using Cohen's d found to be 1.2. this large effect size suggests that the MALL-based intervention had a strong and practically significant impact on enhancing students' reading comprehension skills.

Table 3. *Subgroup analysis based on initial proficiency levels*

Initial Proficiency Level	Average Pre-test Score	Average Post-test Score	Average Score Increase
Lower Proficiency	48.0	68.0	+20
Higher Proficiency	62.0	72.0	+10

Table 3 above indicates that a subgroup analysis based on the students' initial English proficiency levels revealed that those with lower proficiency demonstrated the most substantial improvement, with an average score increase of 20 points. In contract, students with higher initial proficiency showed a more moderate improvement, with an average increase of 10 points.

The quantitative results strongly indicate that the implementation of MALL-based reading

activities significantly enhanced the reading comprehension skills of management students. The marked improvement in post-test scores, couples with the large effect size and positive subgroup findings, suggests that the MALL approach was particularly effective in supporting students with varying levels of English proficiency. These findings underscore the potential of MALL-based interventions to improve language learning outcomes, particularly in reading comprehension, among students in management programs.

The qualitative data analysis results provide a comprehensive understanding of the students' experiences, perceptions, and attitudes towards using Mobile-Assisted Language Learning (MALL) applications for reading activities. The analysis involved interviews with 15 management students who participated in the study, and the data were analyzed using thematic analysis. This approach enabled the identification of key themes that illustrate the impact of the MALL-based intervention on students' reading comprehension, engagement, and overall learning experience.

A central theme that emerged from the interview was the substantial increase in engagement and motivation among the students. Out of the 15 students interviewed, 12 explicitly mentioned that the interactive features of the MALL application such as Quizlet, Kindles, and Duolingo, played a pivotal role in enhancing their interest in reading activities. These features not only made the learning process more enjoyable but also provided a structured way to tract progress, which further motivated the students to participate actively in reading tasks.

Students expressed that the interactive elements of the MALL application not only enhanced their engagement but also motivated them to persist in their learning.

> Excerpt 1: "The Quizlet were fun, and they really made me want to keep going. It wasn't just about reading, it felt like I was playing a game, and I wanted to keep improving my score." (Student #2).

> Excerpt 2: "Using the kindles helped me remember the vocabulary better, and seeing my progress each time made me feel like I was really getting somewhere."(Student#4).

These responses highlight how the gamified elements of the MALL application transformed what might have been a mundane task into an engaging and rewarding experience.

Additionally, students also noted a shift in their attitude toward reading in English, with the MALL application transforming the activity into a more engaging and rewarding experience.

> Excerpt 3: "Before using these apps, I didn't enjoy reading in English much. But with Quizlet and Kindles, I started to see it as a challenge, and it pushed me to do better each time" (Student #6).

Meanwhile another student emphasized the motivation impact of tracking their progress

> Excerpt 4: "The fact that I could see my progress and where I needed to improve kept me motivated. It wasn't just reading for the sake of it; it could see how much I was improving, and that made me keep going." (Student #8).

These insights reveal how the tools helped turn reading into a more goal-oriented and satisfying task for the students.

The interactive features provided a sense of accomplishment and continuous improvement, which were key drivers in increasing both engagement and motivation. By turning reading activities into a more interactive and rewarding experiences, the MALL application effectively encouraged students to participate more actively and consistently, leading to better outcomes in their reading comprehension skills.

Improved reading comprehension
Another significant theme that emerged from the qualitative data analysis was the perceived improvement in reading comprehension among the students. Nearly all participants reported a noticeable enhancement in their ability to understand and interpret English texts, which they attributed directly to the consistent practice and varied activities facilitated by MALL applications.

Out of the 15 students interviewed, 13 expressed that their reading comprehension had improved over the course of the intervention. This improvement was largely attributed to the regular engagement with reading material provided by the MALL application, which allowed students to practice their skills daily. The frequent exposure to English texts, combined with the diverse range of exercise offered by the application, contributed to a more profound understanding of the language.

> Excerpt 5: "Before using the app, I struggled a lot with understanding English texts, especially when they were long or had difficult words. But

after a few weeks, I noticed that I was getting better. The app helped me practice reading every day, and I think that made a big difference." (Student#11).

Excerpt 6: "At first, I found it really hard to keep up with the readings. The texts were challenging, and I often felt lost. But as I continued using the app, I started to recognize more words and understand the context better. By the end of the study, reading in English wasn't as intimidating as it used to be." (Student#12).

This quote illustrates the shift from initial difficulty to increased in handling English texts, a change that many students experienced. Moreover, a student emphasized how the variety of exercise within the app contributed to their learning:

Excerpt 7: "The app gave me different types of exercises that made me focus on the meaning of the words and sentences. It wasn't just reading; I had to think about what I was reading and how the words fit together, which helped me understand the text better." (Student#14).

This comment underscores the importance of diverse and targeted exercise in enhancing comprehension, as students were not only reading but also actively engaging with the material in a way that deepened their understanding.

The perceived improvement in reading comprehension was further validated by the students' performance on post-test assessments, which showed significant gains compared to their pre-test results. This correlation between self-reported and actual improvement highlights the effectiveness of the MALL-based intervention. The students' enhanced comprehension skills were a direct result of the structured and regular practice provided by the MALL application, which allowed them to overcome initial challenges and develop a more confident and proficient approach to reading in English.

In summary, the intervention not only helped students recognize and understand individual words and sentences but also enable them to grasp the overall meaning and context of the texts they encountered. This improvement in reading comprehension was a critical outcome of the study, demonstrating the potential of MALL application to significantly enhance language learning, particularly in students who may have previously struggled with reading in English.

Challenges in application usability

Despite the overall positive reception of the MALL application, several students encountered challenges that affected their learning experience. This theme underscores the crucial role of user-friendly design in educational technology. While most participants found the apps beneficial, a notable number faced difficulties related to navigation and functionality, which sometimes hindered their engagement and progress.

A total 5 out of the 15 interviewed students reported encountering issues with the apps. One common problem was navigating the interface, as one student expressed:

Excerpt 8: "I had trouble finding the right section in the app. Sometimes it was confusing, and I would spend a lot of time just trying to figure out where to go next." (Student#10).

This confusion not only slowed down the learning process but also led to frustration, detracting from the overall effectiveness of application. Another issues highlighted by students was the slow performance of the apps.

Excerpt 9: "The app was slow to load sometimes, and that was frustrating. It made me lose focus, and I didn't want to keep using it when it was like that." (Student#7).

Such technical issues, although not pervasive, had a significant impact on the motivation and persistence of the students who experienced them. Additionally, 3 students mentioned difficulties in accessing specific features that were essential for their learning tasks.

Excerpt 10 "Sometimes, I couldn't find the quizzes or exercises I was supposed to do. It felt like I was wasting time just looking for what I needed, and it made me less motivated to continue." (Student#9).

These usability challenges, while not affecting the majority, suggest that the effectiveness of MALL applications can be compromised if the technology is not intuitive, responsive, or easily accessible. Ensuring that educational apps are designed with a user-centered approach is essential for maximizing their potential to enhance learning outcomes. Addressing these issues could lead to even greater benefits from the integration MALL in educational settings.

Perceived relevance to real-life applications

One of the most impactful themes was the students' recognition of the relevance of the reading materials provided through the MALL application. This theme highlights the critical role of contextualized learning, where the educational content is closely aligned with the students' academic pursuits and future professional endeavors. The students found that the reading passages were not only educational but also closely tied to real-life business scenarios, enhancing the overall learning experience.

A significant number of students, specifically 12 of 15, mentioned that the relevance of the content to real-world application made the reading tasks more engaging and meaningful.

> Excerpt 11 "The readings were about real business situations, which was great because it made them more interesting. I could see how what I was reading could apply to my future job." (Student#1).

> Excerpt 12 "I liked that the materials were related to management topics. It helped me learn English in a way that was directly connected to my studies." (Student#4).

This connection between the reading materials and potential career scenarios helped the students see the immediate value of their learning, reinforcing their motivation to improve their reading skills. Also underscores how the integration of discipline specific content into language learning can facilitate deeper understanding and retention of both language and subject matter. By encountering English in the context of their own field, students were able to see the practical application of their learning, which made the experience more relevant and less abstract.

Moreover, the alignment of the reading materials with real-life business scenarios provide students with a dual benefit; enhancing their English proficiency while simultaneously familiarizing them with industry-specific concept and vocabulary.

> Excerpt 13 "Reading about actual business cases helped me understand the terminology we will need in the workplace. It wasn't just about learning English; It was also about preparing for my career." (Student#5).

This perceived relevance effectively bridged the gap between theoretical knowledge and practical application, making the reading activities not only an educational exercise but also a preparation for future professional challenges. the ability to see the direct connection between their academic work and real-world business situation added an extra layer of motivation, as students felt that their efforts were directly contributing to their career readiness.

Peer interaction and collaboration
The role of peer interaction and collaboration highlighting the importance of social learning in the educational process. The MALL application not only facilitated individual learning but also created opportunities for students to engage with their peers, discuss reading materials, and collaboratively tackle challenge. This collaborative aspect was highly appreciated by the students, as it not only enhanced their understanding of the content but also fostered a sense of community and collective achievement. A notable number of students, 11 out of 15, emphasized the positive impact of peer interaction on their experience.

> Excerpt 14 "I really liked that we could discuss the readings in our study group. If I didn't understand something, I could ask my friends, and we would figure it out together." (Student#6).

This sentiment underscores the value of collaborative learning, where students can pool their knowledge and skills t overcome difficulties. By discussing and debating the reading materials, students were able to clarify doubts, deepen their understanding, and gain new perspectives that they might not have considered on their own.

> Excerpt 15 "Working with others made the reading tasks easier. We could share ideas and help each other out, which made the whole experience more enjoyable." (Student#8).

This statement highlights how collaboration can reduce the cognitive load on individual students by distributing the effort across the group. The ability to share ideas and strategies not only made the tasks more manageable but also turned the learning process into a more interactive and enjoyable experience.

The collaborative nature of the MALL-based intervention was particularly beneficial for students with lower English proficiency. These students often faced challenges in comprehending complex reading materials, and the opportunity to

work with peers provided them with additional support and encouragement.

> Excerpt 16 "Sometimes, I struggled with understanding the texts on my own, but discussing them with my group really helped. My friends would explain things in a way that made it easier for me to understand."(Student#11).

In addition to enhancing comprehension, peer interaction also contributed to building a supportive learning environment. The sense of camaraderie that developed through these interactions helped create a positive and motivating atmosphere, where students felt comfortable sharing their thoughts and asking for help.

> Excerpt 17 "Being able to work with my classmates made me feel more confident. I knew that if I didn't understand something, I wasn't alone, and we could figure it out together." (Student#13).

Moreover, the collaborative aspect of the MALL applications extended beyond just the reading tasks. Students reported that they often continued their discussions and collaborations outside of the formal study sessions, using messaging apps and other communication tools to stay connected and support each other. This ongoing interaction further strengthened their bonds and reinforced the collective learning experience.

In conclusion, the peer interaction and collaboration facilitated by the MALL applications played a crucial role in the students' learning process. By enabling students to work together, discuss materials, and support each other, the MALL-based intervention not only improved their comprehension of the reading materials but also fostered a sense of community and shared responsibility for learning. This collaborative approach proved particularly beneficial for students with lower English proficiency, offering them the additional support they needed to succeed. Ultimately, the emphasis on peer interaction underscores the importance of social learning in enhancing both academic outcomes and the overall learning experience.

This study aimed to assess the impact of Mobile-Assisted Language Learning (MALL) applications on the reading comprehension skills of management students with relatively low English proficiency. The primary research questions focused on the effectiveness of MALL in enhancing students' vocabulary acquisition and reading comprehension, as well as their perceptions and experiences using these applications.

The quantitative data analysis revealed that students who participated in the MALL-based intervention showed a significant improvement in their reading comprehension scores. The results of the paired-samples t-test demonstrated a statistically significant increase in scores from pre-intervention to post-intervention ($t(29) = 7.65$, $p < .001$). The effect size, measured by Cohen's d, was found to be large ($d = 1.40$), indicating a substantial impact of the intervention on students' reading comprehension abilities. These findings suggest that MALL applications effectively enhance students' reading comprehension.

Qualitatively, the thematic analysis of interviews provided further insights into students' experiences and perceptions of the MALL intervention. Key themes that emerged included increased engagement and motivation, improved reading comprehension, challenges in application usability, perceived relevance to real-life applications, and the importance of peer interaction and collaboration. These qualitative findings supported the quantitative results by illustrating how the interactive and contextually relevant features of MALL applications contributed to students' improved comprehension and overall learning experience.

The results of this study demonstrate that MALL applications can significantly enhance the reading comprehension of students with lower English proficiency, aligning with previous research Yu et al., (2022) that has highlighted the benefits of mobile learning tools in language acquisition. The significant improvement observed in students' post-test scores, along with the large effect size, suggests that the interactive nature of MALL applications—such as Quizlet, Kindles, and Duolingo play a critical role in sustaining students' motivation and engagement, ultimately leading to better learning outcomes.

The qualitative findings provide additional context to these results. Students reported that the MALL applications not only made reading activities more engaging but also helped them better understand and retain the material. This aligns with previous studies Hazaea & Alzubi (2016) that emphasize the importance of interactive and adaptive learning tools in enhancing language comprehension. Moreover, the perceived relevance of the reading materials to

real-life business scenarios likely contributed to the students' improved performance, as it provided a practical context for their learning, making the content more meaningful and easier to apply.

However, some students encountered usability challenges with the MALL applications, such as difficulty navigating the interface and slow loading times. These issues, though not widespread, suggest that while MALL applications can be highly effective, their design and functionality are crucial to their success. This finding echoes concerns raised in prior research about the need for user-friendly and responsive educational technologies (Khubyari & Haddad Narafshan, 2016; Nahar & Mallik, 2022; García Botero et al., 2018).

Additionally, the role of peer interaction and collaboration emerged as a significant factor in the success of the MALL intervention. Students valued the opportunity to work together, share ideas, and support each other in overcoming challenges. This collaborative aspect of MALL is consistent with social constructivist theories of learning, which emphasize the importance of social interaction in cognitive development (Vygotsky, 1978; Vygotsky, 2019). The findings indicate that peer collaboration not only enhanced students' comprehension of the reading materials but also fostered a supportive learning environment, particularly for those with lower proficiency.

The findings of this study have several important implications for both theory and practice in language education, particularly within the context of Mobile-Assisted Language Learning (MALL). Theoretically, this study contributes to the growing body of literature that supports the efficacy of mobile technologies in enhancing language learning outcomes. By demonstrating that MALL applications can significantly improve reading comprehension among students with lower English proficiency (Halepoto et al., 2022; Pengnate, 2018; Shahzad et al., 2020), this research reinforces the notion that technology-mediated learning environments can be highly effective in facilitating language acquisition (Halepoto et al., 2022; Lin et al., 2020). The study also underscores the importance of contextualized and interactive learning experiences, which align with constructivist theories of learning that emphasize the active role of learners in constructing knowledge through meaningful engagement with content.

Practically, the results of this study suggest that educators and institutions should consider integrating MALL applications into their language curricula, especially for students who may struggle with traditional reading instruction methods. The significant gains in reading comprehension observed in this study indicate that MALL can be a valuable tool for supporting students' language development in a more flexible and accessible manner. Furthermore, the positive feedback from students regarding the relevance of the reading materials to real-life scenarios suggests that content selection is crucial; educators should prioritize materials that are directly applicable to students' academic and professional lives to maximize engagement and learning outcomes.

While the findings of this study are promising, several limitations must be acknowledged. The study was conducted over a relatively short period, which may not fully capture the long-term effects of MALL on students' reading comprehension. Future studies could extend the intervention period to assess the sustainability of the observed improvements and explore whether the benefits of MALL persist over time.

Based on the findings and limitations of this study, several avenues for future research are suggested. First, future studies should aim to replicate this research with a larger and more diverse sample to enhance the generalizability of the results. Exploring the impact of MALL on different demographic groups, such as students from various educational backgrounds or regions, could provide more nuanced insights into the effectiveness of mobile technologies in language learning. Second, future research could investigate the long-term effects of MALL on reading comprehension and other language skills. Longitudinal studies would be particularly valuable in determining whether the gains observed in this study are sustained over time and whether continued use of MALL applications leads to further improvements in language proficiency.

Additionally, future studies could explore the impact of different types of MALL applications or instructional designs on language learning outcomes. For example, comparing the effectiveness of MALL applications that focus on vocabulary acquisition versus those that emphasize reading comprehension or other language skills could provide insights into how best to integrate mobile technologies into language curricula. Finally, further research is needed to

examine the specific features of MALL applications that contribute most to student engagement and learning. Understanding which aspects of these tools (e.g., interactivity, feedback mechanisms, content relevance) are most effective can inform the design and development of future MALL applications, ensuring that they meet the needs of diverse learners and maximize educational outcomes.

CONCLUSION

The primary purpose of this study was to explore the effectiveness of Mobile-Assisted Language Learning (MALL) applications in enhancing the reading comprehension of students with relatively low English proficiency. The research was guided by the question of whether the integration of MALL into language instruction could lead to significant improvements in students' reading skills. Additionally, the study sought to understand the students' perceptions of MALL applications and how these perceptions influenced their engagement and learning outcomes.

The key findings of this study revealed that the use of MALL applications significantly improved students' reading comprehension, as evidenced by the results of the t-test and Cohen's d. The quantitative data indicated that students who participated in MALL-based activities showed greater improvement in their reading scores compared to those who did not. Furthermore, the qualitative analysis highlighted that students valued the interactive and flexible nature of MALL applications, which allowed them to engage with reading materials in a more meaningful and accessible way. Peer interaction and collaboration facilitated by MALL were also found to play a crucial role in supporting students' learning and enhancing their overall experience.

In interpreting these findings, it is evident that MALL applications can effectively address some of the challenges faced by students with lower English proficiency. The improvements in reading comprehension observed in this study suggest that MALL provides a supportive learning environment that fosters active engagement and personalized learning experiences. These results align with previous research that emphasizes the benefits of technology in language learning, particularly in providing learners with the tools to manage their learning processes and overcome language barriers.

The implications of this study are significant for both theory and practice. Theoretically, the findings contribute to the growing body of literature on the efficacy of mobile technologies in language education, reinforcing the importance of interactive and contextualized learning environments. Practically, the study suggests that educators and institutions should consider integrating MALL applications into their curricula to support students' language development, especially for those who may struggle with traditional methods. Additionally, the positive reception of MALL by students highlights the importance of selecting relevant and applicable reading materials that resonate with learners' academic and professional contexts.

However, the study is not without limitations. The small sample size and short duration of the intervention limit the generalizability and long-term applicability of the findings. The reliance on self-reported data also introduces the possibility of bias. These limitations suggest that further research is needed to validate the findings and explore the long-term effects of MALL on reading comprehension and other language skills.

In light of these findings and limitations, future research should focus on replicating this study with larger and more diverse samples to enhance the generalizability of the results. Longitudinal studies could also provide valuable insights into the sustainability of the observed improvements over time. Additionally, future investigations could explore the specific features of MALL applications that are most effective in enhancing language learning outcomes, as well as comparing the impact of different types of mobile learning tools on various language skills.

In conclusion, this study has demonstrated the potential of MALL applications to significantly improve reading comprehension among students with lower English proficiency. By providing a flexible, interactive, and supportive learning environment, MALL applications can help bridge the gap in language skills and offer learners new opportunities to succeed. The findings of this study contribute to the ongoing discourse on the role of technology in education and underscore the need for continued exploration of innovative approaches to language teaching and learning.

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