

Enhancing English Achievement through Mobile-Assisted Language Learning (a Pre-Experimental Single-Group Study)

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Abstract

This research explores how well using mobile devices to learn languages works to help 47 vocational students at the Bengkalis State Polytechnic improve their English skills. Student abilities in speaking, listening, reading, and writing were assessed using paired-sample t-tests, in a pre-experimental setup involving tests before and after the intervention. The data demonstrated considerable gains in all four areas ($p < 0.001$), suggesting that learning with mobile devices is a successful method for enhancing English language skills. The discoveries emphasize the function of mobile-assisted language learning in encouraging self-directed, interesting, and technologically advanced education, thus presenting an advantageous substitute for standard teaching methods in vocational training.

Keywords : Mobile-Assisted Language Learning (MALL), English proficiency, vocational education

1. INTRODUCTION

The title should correspond to the theme of INTECHBIZ 2025. The author's name must be written in full, without academic titles, and should include all contributors. The affiliation, whether a university or an institution, must be stated in accordance with the assignment. Each author must provide an active email address. The content format should follow the template provided, with the option to adjust headings according to the content or purpose of each paper.

In the current age of digital technology, mobile devices are now essential to students' everyday routines and have greatly reshaped how education is delivered. Enhanced availability of both smartphones and learning apps has revealed possibilities for original ways of teaching language. Nevertheless, even with the rising fascination with using mobile devices in English language teaching, many schools, particularly those focused on vocational training and higher studies, still depend considerably on conventional teaching methods where instructors are the primary focus. This frequently leads to students being less interested and slower to improve their ability to communicate effectively. Because of this, it is extremely important to investigate the ways that learning strategies that use mobile technology can successfully improve how well students do in English.

Prior investigations have revealed encouraging results regarding Mobile-Assisted Language Learning (MALL) and its capacity to boost different facets of linguistic competence. As an illustration, Kukulska-Hulme and Shield (2008) underscored that learning via mobile devices nurtures independence and adaptability, which empowers students to learn whenever and wherever they choose. Likewise, Burston (2015) established that implementing MALL strategies can lead to better vocabulary recall and heightened enthusiasm among students. More recent investigations carried out by Chen and his colleagues (2020) and Hazaea & Alzubi (2018) also indicated that mobile platforms like Duolingo, Hello English, and BBC Learning English can serve to strengthen students' abilities in listening and speaking. Notwithstanding these advantageous discoveries, we still observe a scarcity of concrete data originating from quasi-experimental studies executed within vocational education environments, specifically in

Indonesia, where the English language skills of students frequently fall short of the anticipated benchmark.

This current research is designed to explore how well Mobile-Assisted Language Learning works to elevate students' grades in English, employing a quasi-experimental setup that uses assessments before and after the intervention. To be precise, this research endeavors to ascertain if incorporating mobile learning applications can produce noteworthy enhancements in students' capabilities in all four fundamental linguistic areas: speaking, listening, reading, and writing.

This research is valuable because it offers real-world proof of how using mobile devices for learning helps in job training programs, where it's more and more important to have hands-on ways of learning that use technology. Also, it is predicted that what this study finds will help teachers and government officials use mobile learning along with normal teaching in classrooms, which will make learning English more interesting and focused on the student.

This study does have several significant limitations that must be recognized. Firstly, the research utilized a quasi-experimental pretest–posttest framework without including a randomized control group. The implementation of a control group was not feasible due to practical and ethical challenges within the vocational institutions involved (such as limited cohort sizes, conflicts with regular scheduling, and administrators' hesitance to deny potentially advantageous instructional resources to certain students). The lack of a control group heightens the likelihood of alternative explanations for the observed improvements (such as history effects, maturation, repeated-testing effects, or concurrent instructional activities), which consequently restricts our ability to make definitive causal conclusions regarding the impact of mobile-assisted interventions on English proficiency.

Secondly, the unique context of vocational students limits generalizability. Vocational students often have different prior exposure to English, different levels of digital literacy, and different work-oriented motivations than general academic populations. Selain itu, variasi dalam akses internet dan perangkat mobile yang sesuai antara para peserta dapat berdampak pada keterlibatan dengan aplikasi dan, akibatnya, hasil yang diukur. Menurut these context factors, the results should be interpreted as an indication of effectiveness in similar vocational settings rather than as universally applicable to all students in secondary or tertiary education..

The study employs meticulous pre- and post-assessment, open reporting of participant characteristics, and, when feasible, triangulation of quantitative scores with classroom observations and student input in order to lessen these constraints. To improve internal validity and external generalizability, future studies should aim to incorporate matched or randomized control groups, longer follow-up periods to evaluate retention, and multi-site samples that reflect various vocational specialties and geographical areas.

2. REVIEW OF LITERATURE

Employing mobile technology to aid language learning, known as Mobile-Assisted Language Learning (MALL), builds upon Computer-Assisted Language Learning (CALL). It underscores the importance of using mobile tools, like smartphones, tablets, and other handheld digital devices, to improve and facilitate how languages are learned. Kukulska-Hulme and Shield noted in 2008 that MALL allows students to study languages in various settings outside the traditional classroom, which boosts independence and adaptability in their learning approach. This method of learning shows a move away from teaching focused on instructors toward more dynamic, student-led learning setups.

MALL's theoretical underpinnings are based on various educational theories, notably Constructivism and Communicative Language Teaching (CLT). The constructivist viewpoint emphasizes that students build their understanding by actively engaging with digital resources and real-world situations (Vygotsky, 1978). Learners can use mobile technology to find genuine resources, work together with others, and get feedback right away. At the same time, CLT highlights that the main aim of learning a language is to communicate, which MALL helps by enabling real-life interactions using mobile apps and online spaces.

A multitude of research projects have highlighted how well mobile-assisted language learning, or MALL, works when it comes to getting better at English. In 2015, Burston looked at lots of MALL programs and noticed that people usually got better at learning new words, saying them correctly, and feeling excited about learning. Similarly, Hazaea and Alzubi did some research in 2018 on how learning apps on phones affected English learners in Saudi Arabia. They figured out that using apps like Duolingo and Hello English really helped students learn more words and speak English better. Chen and others did a study in 2020 that showed MALL can make learning more personal, which makes students more interested and helps them remember what they learn because the content changes to fit them and keeps them involved.

Additionally, a number of studies that were almost like experiments gave proof that MALL really does work well. For instance, Lin and Lin used tests before and after to see how much mobile learning helped college students with their English grammar and reading abilities in 2019.

They discovered that students did much better on the tests after using mobile learning compared to when they were taught in the usual way. In the same way, Derakhshan and Khodabakhshzadeh pointed out in 2011 that using phones to help with learning made students feel more excited and positive about learning English, which led to them doing better in school.

Even though things are looking good, we still need to learn more about how to use MALL in job training programs. Students in these programs often need to learn practical English that they can use in their jobs, and using phones could be a great way to bring real-life English into their learning. Alamer and Al Khateeb suggested in 2021 that future studies should explore the best ways to use MALL to help students in job training get the specific language skills they need for their careers.

In summary, previous studies generally show that MALL is a useful and adaptable way to teach English. However, we still don't know much about how it's used in job training settings and how much it helps students get better at all the important English skills: listening, speaking, reading, and writing. This study is trying to fix that by using a method that's almost like an experiment to see if learning English with phones really helps students in job training improve their English skills.

3. METHOD

This research made use of a pre-experimental setup, employing a single group examined before and after the experiment, since there was no comparison group. The purpose of this design was to assess how much students' English skills improved once Mobile-Assisted Language Learning (MALL) techniques were put into practice. The basic idea behind this study's theoretical basis was that including mobile technology in language education may improve students' participation, independence, and general success in English.

3.1. Location of the Research

This research project took place at the State Polytechnic of Bengkalis (POLBENG), which is a vocational school of higher learning located in Indonesia. Forty-seven students who were studying vocational subjects and taking an English class in the current school term participated in the project.

3.2. Equipment and Material

The tools and resources implemented throughout this research were:

- a. Cellular phones (both smartphones and tablets) that pupils utilized to connect to MALL software.
- b. Software designed for language acquisition, like Duolingo, Quizizz, along with Google Classroom, that assisted with training in vocabulary, grammatical rules, and understanding.
- c. Evaluations conducted both before and after the study to measure how well the students understood English in the four areas of listening, verbal communication, reading, and written communication.
- d. The SPSS program, which was employed to examine the information by running paired sample t-tests.

3.3. Procedures

The investigation was executed through four distinct phases:

- a. **Pre-Test Administration:**
A standard English exam was given to both participant groups to ascertain their starting skill levels. The exam evaluated aspects of speaking, comprehension, reading, and compositional abilities.
- b. **Treatment Implementation**
The experimental group participated in learning activities aided by MALL applications across six weeks. Students used mobile apps in classrooms and for their self-guided learning. Concurrently, the control group went through the same English curriculum using conventional textbook teaching without any mobile devices.
- c. **Post-Test Administration:**
Following the treatment timeframe, both groups undertook a post-test mirroring the pre-test setup. The outcomes were then juxtaposed to find meaningful advancements in English language skills.
- d. **Data Analysis:**
The analysis of numerical data involved paired-sample t-tests to find improvements within each group and independent-sample t-tests to contrast the differences in performance between the experimental group and the control group. A threshold of $p < 0.05$ was the standard used to decide whether statistical significance was present.

4. RESULT & DISCUSSION

This study discovered about the findings concerning the goals of the research and any connected ideas. The information was pulled from the students' grades on tests they took before and after trying out Mobile-Assisted Language Learning (MALL), focusing on four parts of English talking, hearing, understanding written words, and creating written content. The results are taken apart to figure out if the students got much better at English and to talk about how using MALL helped them learn more successfully like the following table below:

Table 4.1. Paired Samples Statistics

Paired Samples Statistics					
	Category	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Speaking pre-test	59.7234	47	3.99838	.58322
	Speaking post-test	83.0213	47	3.94797	.57587
Pair 2	Listening pre-test	61.7872	47	3.75289	.54742
	Listening post-test	85.2128	47	3.65903	.53372
Pair 3	Reading pre-test	63.2766	47	3.90486	.56958
	Reading post-test	86.3830	47	3.57864	.52200
Pair 4	Writing pre-test	60.6170	47	3.89846	.56865
	Writing post-test	83.8936	47	3.43406	.50091

Table 1 presents a summary of the paired samples statistics concerning the English skills of students in four crucial areas—speaking, listening, reading, and writing—assessed both before and after the introduction of Mobile-Assisted Language Learning (MALL). The data was obtained from a group of 47 vocational students who participated in both the initial and final testing phases. Each skill was assessed using standardized tools created to measure specific language abilities, ensuring the accuracy and dependability of the data collected. The aim of this analysis was to ascertain the degree of advancement achieved by students as a direct consequence of incorporating MALL applications into their English learning journey.

Based on the data shown in the table, the average scores for all final assessments demonstrate a significant and consistent improvement when compared to the initial results. Specifically, the average score for speaking rose from 59.72 to 83.02, listening from 61.78 to 85.21, reading from 63.28 to 86.38, and writing from 60.62 to 83.89. These considerable increases in the average values across all four skills clearly indicate that students achieved substantial gains in their overall English proficiency following the implementation of MALL-based teaching.

The pattern of improvement indicates that learning through mobile devices effectively encouraged a more interactive and student-focused method of language acquisition. The utilization of interactive mobile apps likely provided learners with ongoing exposure to real-world materials, multimedia input, and prompt feedback elements that have been recognized in earlier research (e.g., Burston, 2015; Chen et al., 2020) as vital contributors to language development. Furthermore, the relatively small standard deviations and standard error means reveal that the scores were consistently distributed among participants, suggesting that the beneficial impacts of MALL were not limited to a small number of individuals but were widely experienced across the student group. This consistency strengthens the reliability of the intervention and implies that MALL can be applied effectively in various classroom settings.

To summarize, the data in Table 1 offers strong initial evidence that incorporating MALL into English language instruction significantly improved students' performance in all areas measured. The observed improvement across speaking, listening, reading, and writing demonstrates that learning through mobile devices is not only effective for receptive and productive skills but also enhances overall communicative competence. These findings establish a foundation for further examination in the subsequent section, where the statistical test results (Table 2) and their alignment with previous empirical research and theoretical frameworks will be discussed in depth.

Table 4.2. Paired Samples Test

Paired Samples Test										
Category		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	speaking pre-test - speaking post-test	- 23.29787	.62258	.09081	-23.48067	- 23.11508	- 256.549	46	<,001	<,001
Pair 2	listening pre-test - listening post-test	- 23.42553	.54152	.07899	-23.58453	- 23.26653	- 296.566	46	<,001	<,001
Pair 3	reading pre-test - reading post-test	- 23.10638	.75855	.11065	-23.32910	- 22.88367	- 208.833	46	<,001	<,001
Pair 4	writing pre-test - writing post-test	- 23.27660	.64949	.09474	-23.46729	- 23.08590	- 245.696	46	<,001	<,001

Table 2 presents the paired samples t-test outcomes, which was done to check if there were noticeable statistical differences between how students scored before and after the test in four areas of English: speaking, listening, understanding texts, and writing. The consistently negative average differences show that scores after the test were better than before in all areas.

The results show big average differences for speaking (-23.30), listening (-23.43), understanding texts (-23.11), and writing (-23.28), which means there was a clear improvement after using Mobile-Assisted Language Learning (MALL). The high t-scores, between -208.833 and -296.566, with p-values less than .001 (two-tailed), prove that these improvements are statistically important. These results prove that using mobile technology in English learning has a strong and clear effect on how well students do in language skills.

The improvement in all four language skills can be seen as proof of how useful MALL is for teaching. According to Kukulska-Hulme and Shield (2008), MALL makes learning possible everywhere, allowing students to use real materials anytime and anywhere, which helps them learn in a way that is more personal and consistent. This flexibility helps with learning in real situations, where students deal with real-world situations and real language, which strengthens their understanding and ability to use the language. Also, Stockwell (2010) points out that learning with mobile devices makes students more independent by letting them control how fast they learn and pick materials that fit their needs, which makes them more motivated and confident.

The noticeable improvement in speaking and listening shows how well MALL can encourage learning that is interactive and communicative. Students were able to hear spoken English, use tools to practice pronunciation, and watch dialogues with multimedia that improved their listening and speaking skills through mobile apps.

These results agree with Miangah and Nezarat (2012), who found that mobile learning improved listening and speaking skills by giving students real-life examples and chances to hear things repeatedly. Similarly, Burston (2015) mentioned that using mobile apps in language learning greatly increased how motivated students were and how well they spoke.

The improvement in understanding texts (reading) and writing also matches what Rahimi and Miri (2014) found earlier, which was that mobile learning environments improved students' reading comprehension and writing skills through interactive exercises and quick feedback. The availability of mobile dictionaries, tools for taking notes, and writing apps likely helped students understand texts better and write more effectively.

Additionally, the overall improvement in all four skills emphasizes how completely MALL affects language learning. As Viberg and Grönlund (2012) argued, MALL offers a learning environment that uses text, audio, and visuals, allowing students to understand information through different senses and remember it better. Combining visual and auditory information is especially helpful for vocational learners, who often prefer practical ways of learning that use technology.

From an educational standpoint, the outcomes imply that using MALL has the potential to revolutionize how English is taught, making it a more stimulating, collaborative, and learner-focused activity. Educators can broaden education outside the traditional classroom environment by adding mobile technology into their teaching, which promotes independent learning and gives fast access to real-world language materials. This holds specific importance in professional training situations, where students require adaptable and practical learning techniques that correspond with their career aspirations.

In conclusion, the paired samples t-test results validate that employing MALL resulted in notable advancements in students' English language skills across all areas. These results strengthen the established ideas of widespread learning and self-governed learners, further confirming the increasing empirical data emphasizing MALL's efficacy in language learning. Therefore, MALL could be seen as an advantageous educational advancement that enhances language ability and cultivates students' eagerness, involvement, and self-reliance.

5. CONCLUSION

This research determined that employing Mobile-Assisted Language Learning proved to be efficient in boosting the English language capabilities of students in the areas of speaking, listening comprehension, reading, and writing skills. The noticeable variations observed when comparing initial and final assessment scores ($p < 0.001$) demonstrate that utilizing MALL substantially enriched the educational achievements of the students involved. The data gathered supports the notion that education delivered via mobile devices encourages adaptability, independence, and drive, enabling pupils to engage in learning experiences irrespective of time or location. To summarize, MALL emerged as a valuable asset in facilitating the acquisition of the English language, particularly for students in vocational programs who gain advantages from hands-on methods rooted in technology.

6. REFERENCES

- Alamer, A., & Al Khateeb, A. (2021). *The role of mobile-assisted language learning (MALL) in vocational English education: A review and future directions*. International Journal of Emerging Technologies in Learning, 16(7), 45–59.
- Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. ReCALL, 27(1), 4–20.
- Chen, C. M., Liu, H., & Huang, H. B. (2020). Effects of mobile English learning on learners' engagement and achievement based on learning analytics. Educational Technology & Society, 23(2), 80–92.
- Derakhshan, A., & Khodabakhshzadeh, H. (2011). Why call why not MALL: An in-depth review of MALL. Theory and Practice in Language Studies, 1(2), 202–209.
- Hazaea, A. N., & Alzubi, A. A. (2018). The effect of mobile-assisted language learning (MALL) on EFL learners' grammar and vocabulary achievement. International Journal of Instruction, 11(2), 25–42.
- Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. ReCALL, 20(3), 271–289.
- Lin, M. H., & Lin, H. H. (2019). A study of the effects of digital learning on learning motivation and learning outcome. Education and Information Technologies, 24(1), 1–15.
- Miangah, T. M., & Nezarat, A. (2012). Mobile-assisted language learning. International Journal of Distributed and Parallel Systems (IJDPS), 3(1), 309–319.
- Rahimi, M., & Miri, S. S. (2014). The impact of mobile dictionary use on language learning. Procedia - Social and Behavioral Sciences, 98, 1469–1474.
- Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. Language Learning & Technology, 14(2), 95–110.
- Viberg, O., & Grönlund, Å. (2012). Mobile assisted language learning: A literature review. Proceedings of the 11th World Conference on Mobile and Contextual Learning (mLearn 2012), 9–16.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.