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INTEGRATING A SCIENTIFIC APPROACH ON MOBILE ASSISTED LANGUAGE LEARNING IN ENGLISH WRITING INSTRUCTION

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ABSTRACT

Writing has often been considered a challenging skill to master. The purpose of this research is to investigate the effect of a scientific approach based on Mobile Assisted Language Learning (MALL) on enhancing students' descriptive writing abilities. This investigation employed classroom action research with twenty-four ninth-grade junior high school students in West Jakarta as participants. The research was conducted in two cycles, utilizing observation, interviews, and a series of writing tests to collect data. The results indicated that students' writing improved as a consequence of the use of a scientific approach based on MALL. By engaging them in a number of practices at each meeting, working with websites and applications, and seeking feedback from both students and teachers, MALL tended to enhance students' writing abilities. Implementing a scientific approach supported by MALL has shown potential in helping learners enhance their ideas in writing. They demonstrated their ability to create lengthy paragraphs supplemented with relevant details. Students boosted their vocabulary learning by using digital dictionaries and watching videos. Regular feedback from peers and teachers were crucial in helping students understand the significance of punctuation and spelling accuracy in their written work. Therefore, it is advised to conduct additional scholarly research to examine the effectiveness of the scientific approach based on MALL, covering not just writing skills but also extending to reading, speaking, or listening skills.

Keywords: Action research, MALL, Scientific approach, Writing skills

A. INTRODUCTION

Writing is a productive English language skill and can be interpreted as a process of transferring one's thoughts, ideas, or even feelings so that they can be understood by others. It can be interpreted as a productive activity that can produce a word in written style (Spanou and Zafiri, 2019). Also, writing is a complex process due to the fact that it enables people to express their perceptions, thoughts, feelings, and experiences (Ramet, 2011; Wang et al., 2014). Due to the fact that the majority of students dislike the English writing classes, they acquire a lack of confidence when it comes to express their thoughts and ideas. Because of

this, teachers have not been able to make the most of the successful teaching approaches in writing, and as a consequence, learners do not have sufficient time to practice writing in the classroom on a regular basis.

The teacher frequently leads writing instruction in the classroom (Antika, 2014). The chalk-and-talk method, often known as the jug-and-mug method, involves an instructor writing on the board with limited interaction with students (Stehlik, 2018). Furthermore, the school provides a limited time for learning. Learners are not provided enough time to practice in order to enhance their writing skills (Toba, 2019). This perspective is sometimes referred to as teacher-centered learning or traditional method. The teacher spends classroom activities delivering the lesson, while students attentively listen (Chang, 2011). Ghafar (2023) states that the teacher acts as an instructor or guide for the learner, who is seen as a key figure in their own learning process. The teacher takes on the responsibility of facilitating the student's progress.

Kemdikbud (2013) and Hosnan (2014) underline the five-step scientific method adoption in the educational process: observation, questions, experimentation, association, and communication. The purpose of the scientific approach is to educate students how to recognize and comprehend a variety of materials by employing a scientific approach. This technique demonstrates that knowledge may originate from anywhere and at any time, and that it is not dependent on the teacher's direct information. Furthermore, Hosnan (2014) adds that the learning conditions that are supposed to be developed are directed to enable students to find out from a variety of sources through observation rather than simply narrating stories. Following are some of the features that Kurinasih and Sani (2014) highlight as being associated with learning that adopts a scientific approach: 1) It is cantered on the student; 2) It takes into account scientific process skills in the construction of concepts, rules, and principles; 3) It takes into account potential cognitive processes in stimulating intellectual development, particularly the higher-level thinking abilities of students; 4) It has the ability to improve student character.

Along with the rapid development of technology, learning to write through a scientific approach can be done with the help of various supporting learning applications to foster learning motivation, especially students' writing skills. The fact that mobile learning does not just aim to improve students' language skills is significant and should not be overlooked. In this study, learners do not only write on paper but they use writing applications, such as Padlet, Mindmeister, and Wakalet can be a tool for students to use and utilize these facilities through their personal devices. In this Mobile Assisted Language Learning (MALL) framework, mobile technology can be useful in developing students' language skills, especially writing (Eubanks et al., 2018). To facilitate the development of students' writing skills, previous research has collaborated to investigate various instructional mobile technologies in facilitating students' writing activities, such as: Cell phones (Sandberg et al., 2011), PDAs (Wang et al., 2014), iPods (Billings & Mathison, 2012), netbooks (Lin & Wu, 2010) and mobile apps (Kanala et al., 2013). However, innovative pedagogies on the integration of mobile technologies into language classroom practices are needed, especially to develop students' writing skills (Miller & McCardle, 2011). As a result, there is an obvious case for research in the context of secondary school settings due to the limited study by

scholars into the effects of implementing a scientific approach in writing instruction through MALL. Therefore, the present research investigates the implementation of a scientific approach using MALL (mobile-assisted language learning) in the context of teaching English writing.

B. METHOD

This study focused on eighth-grade students at a junior high school in West Jakarta, Indonesia. Several reasons determined the decision of the setting. The school was selected based on criteria that made it feasible. The researcher successfully managed the study's progress through consideration of factors such as the implementation of a scientific approach into the curriculum, which offered further insight on how to effectively use MALL in the classroom.

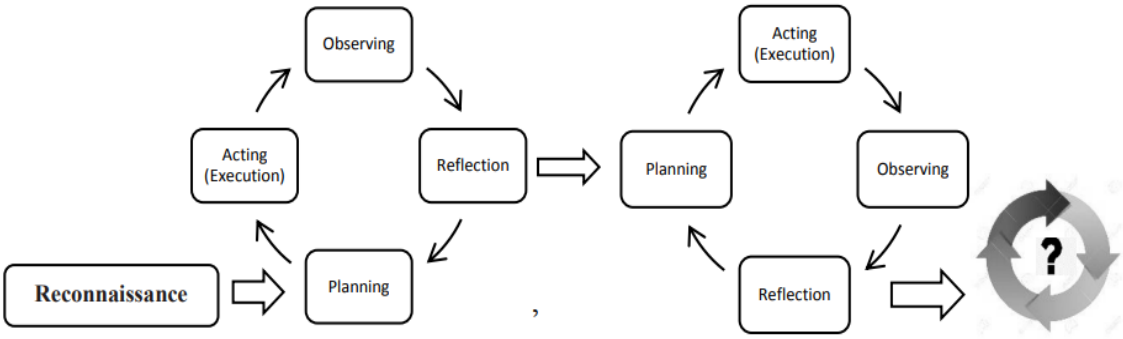

Figure 1. Kurt Lewin Classroom Action Research Pattern

The design proposed by Kurt Lewin was implemented in this study, which was conducted using the Action Research method. Particularly when conducting research employing classroom action methods, this is due to the fact that Kurt Lewin's design serves as a basic reference for other designs (Lufungulo et al., 2021). Basic elements represent the four cycle steps: planning, acting, observing, and reflecting and next cycle is replanning, acting, observing, reflecting (Lewin, 1946) cited in (Amin et al., 2019). Scoring and classifying the students' writing skills ability as suggested by Heaton (1991). Students are required to get a score of 75.0 or higher on their writing assessments in order to meet or exceed the minimal mastery criteria for English that have been established by the educational institution. The achievement of scores of 70.0 or higher by a minimum of 75% of students who have completed individual writing descriptive texts is the definition of effective implementation.

Table 1. Classifying the Score Adopted from Heaton (1991)

Range of Score	Category
86-100	Excellent
75-85	Good
56-74	Fair
≤50	Poor

C. FINDINGS AND DISCUSSION

During the first phase of the research, the researcher observed the learning activities that students were engaged in while using the material that was gained in class. Following this, the researcher distributed descriptive writing assessments in English. The purpose of this is to investigate the challenges or obstacles that learners encounter when writing.

Tabel 2. Pre-Test Results of Descriptive Text Writing
Using a Scientific Approach Based on MALL

Students 'Initial Names	Content 30	Organization 20	Grammar 25	Vocabulary 20	Mechanism 5	Total 100	Level
S1	13	8	6	9	3	39	Poor
S2	16	15	10	8	5	54	Poor
S3	19	11	12	10	3	55	Fair
S4	11	8	6	6	3	34	Poor
S5	14	9	10	11	2	46	Poor
S6	14	9	10	10	3	46	Poor
S7	21	12	14	16	4	67	Fair
S8	14	9	11	11	5	50	Poor
S9	15	11	14	13	5	58	Fair
S10	18	15	18	9	4	64	Fair
S11	14	8	6	8	3	39	Poor
S12	13	8	8	6	3	38	Poor
S13	20	10	7	6	2	45	Poor
S14	22	15	8	9	4	58	Fair
S15	15	11	8	10	2	46	Poor
S16	19	11	12	10	3	55	Poor
S17	12	7	5	5	4	33	Poor
S18	14	8	6	8	3	39	Poor
S19	12	10	9	7	2	40	Poor
S20	20	10	7	6	2	45	Poor
S21	12	8	6	7	2	35	Poor
S22	13	8	8	6	3	38	Poor
S23	13	10	7	8	2	40	Poor
S24	12	8	8	9	2	39	Poor
Average score	15,25	10.05	9,2	8,8	3,1		

Based on the findings, it is obvious that a significant number of students tend to have difficulties in every aspect of writing. It is still the case that the students' average writing level is at the "poor" level, which is dominated by 79.2% of the students. The "Fair" level, which is not considered capable because it does not meet the passing threshold of assessment, was only achieved by 20.8% of the learners. This level is likewise not considered capable. According to the findings of the pre-test that was administered to twenty-four learners, there is one student who has fairly satisfactory results with an average score of 67. This student has the ability to compose descriptive writing that has parts of writing that are

quite good. 1 student, on the other hand, had the lowest result, which was a score of 33. This is in line with Hyland (2013) that over-emphasizing psychological concerns ignores the impact of content on EFL writing. Writing is shown as a skill beyond its environment, implying that the learner cannot convey their ideas well. Further, most EFL teachers are unaware of how a language is used to teach a skill or what writing means (Sadikin & Handayani, 2019).

Results in Cycle I

This phase was begun by making a lesson plan that would be used in the acting phase. The first meeting was held on September 19, 2023, starting from 10:00 to 12:00. The focus of this meeting was to explore students' knowledge about descriptive text. The action phase in the first meeting, the researcher greeted the students, checked their attendance, and opened with prayer, this indirectly made them enjoy and feel confident. Second, I re-explained the purpose, structure, and linguistic features of descriptive text. Third, students are asked if they have ever visited tourist attractions in Jakarta. This time, what they will learn is the location of tourist attractions in Jakarta. After that, they watched a virtual travel video in Jakarta and conveyed what they saw and information from the video. A topic of tourist attractions in Jakarta was given to the students. They are asked to choose one of the tourist sites in Jakarta, such as Monas, National Museum, and Ancol Beach and start exploring information through several applications such as Youtube and Wakalet.

The second meeting of the first cycle was held on September 22, 2023, starting from 10:00 to 11:20. The focus of this meeting was on the organizational aspects of descriptive text. The activity started with greeting the students, checking their attendance, and praying. Then, I reminded students about what they learned in the previous meeting. Before watching the virtual travel video, students mentioned some vocabularies representing Monas, National Museum, and Ancol Beach. After that, the researcher used Mind Meister app to collect students' ideas and answers related to tourism in Jakarta that they have visited. After that, videos of virtual trips to several tourist attractions were shown and students were asked to retell their virtual experiences to several tourist attractions. Next, students were asked to fill in the past tense verbs in the missing sentences in the text entitled "Unforgettable Vacation in Jakarta." Then, students were asked to rearrange the random sentences. At the end of the lesson, students summarized what they learned and closed with a prayer.

The third meeting was held on October 26, 2023. In this meeting, students focused on story creation. The activity began with greeting students, checking their attendance, and reminding them of what they had learned in the previous meeting. Then, students were asked for their opinions about Pondok Indah Kapuk (PIK) tourism. After that, a virtual trip through video was conducted, and students were asked to retell the virtual trip video. Tasks related to vocabulary, grammar, and text structure were also given, including doing a Kahoot quiz before writing their virtual vacation experience. Students did a test after the last activity. They wrote their virtual trip to PIK and the researcher gave feedback and corrections to their writing. The lesson was closed with a summary of the activities done and ended with a prayer.

In the observation phase, the author acted as a teacher and observer who monitored the educational process and learning activities in the classroom. There were various changes in student behavior that could be seen during the learning activities in the first cycle. At this stage, there were students who began to be active in responding to questions posed by the teacher. However, they still needed encouragement and motivation from the teacher to be

more enthusiastic in answering these questions in Indonesian. Students' concentration level in learning at this stage showed improvement. They were fully focused on the virtual travel video and the explanation given by the teacher. Students who are usually distracted by personal activities or chatting with their friends showed a decrease in such activities. Meanwhile, students' expression in expressing their opinions while learning also changed. There were some students who began to express their thoughts related to the subject matter, such as giving opinions about a city or verbally describing their virtual travel experience. However, there were still students who chose to remain silent and only listen to the responses of their peers, due to the fear of having an opinion that might be considered inappropriate.

Tabel 3. Post-Test Results of Descriptive Text Writing Using a Scientific Approach Based on MALL Cycle I

Students 'Initial Names	Content 30	Organization 20	Grammar 25	Vocabulary 20	Mechanism 5	Total 100	Level
S1	20	10	14	11	3	58	Fair
S2	18	14	13	13	5	63	Fair
S3	25	11	20	13	4	73	Fair
S4	20	13	15	8	4	60	Fair
S5	18	12	18	10	4	62	Fair
S6	18	15	10	11	3	57	Fair
S7	24	15	18	10	5	72	Fair
S8	18	11	14	15	5	63	Fair
S9	22	16	17	13	5	73	Fair
S10	26	16	20	10	5	77	Good
S11	18	13	10	10	4	55	Poor
S12	19	10	10	11	4	54	Poor
S13	22	10	9	9	3	53	Poor
S14	24	18	11	14	4	71	Fair
S15	20	11	10	10	4	55	Poor
S16	22	16	18	15	5	76	Good
S17	16	10	10	15	3	54	Poor
S18	18	13	15	14	4	64	Fair
S19	18	13	10	13	3	57	Fair
S20	24	10	11	10	3	58	Fair
S21	20	15	9	12	4	60	Fair
S22	18	12	13	10	3	56	Poor
S23	18	15	12	10	3	58	Fair
S24	19	15	12	13	3	62	Fair
Average Score	20,21	13,1	13,3	11,7	3,88		

Based on table 3, the results of students' descriptive text writing have improved in several aspects. 6 students reached the minimum score of 70. While the highest score obtained in cycle 1 is 77. The There are six students, or 25 %, who are considered to be at the "poor" category. This is a slight decrease from the previous percentage. As much as 66.7% of the

whole population, 16 individuals have achieved a "fair" level, and the remaining two learners, which accounts for 8.3% of the total, have been able to acquire scores in the "good" category.this shows that students have been able to improve their ability to export their ideas through writing compared to the average score in the pre-cycle. Based on the result, it can be found that the use of MALL provide educational opportunities that are both interactive and engaging. Students can have more fun when writing with apps, games, and multimedia content, which in turn encourages and motivates them to practice writing more (Sadikin, 2023; Dwigustini et al, 2021)

Results in Cycle II

The second cycle was carried out on October 3, 6, and 10, 2023. in this second cycle the teaching and learning process was basically the same as the first cycle. In the planning stage of the second cycle of action research in the writing classroom, the teacher carefully laid the foundation by clarifying the specific aspects that the students needed to focus on in writing. The carefully prepared lesson plan incorporated the Mobile-Assisted Language Learning (MALL) application, which demonstrated a technology-integrated approach. Comprehensive field notes are provided to guide throughout the learning process.

Moving on to the implementation stage, the first meeting held on October 3, 2023, from 8:30-9:30, concentrated on the grammatical aspects of writing. The routine of greetings, checking attendance, and prayers was the opening. Utilizing the Mind Meister app, the students engaged in collaborative idea mapping to explore interesting places in Bali. Working in pairs, they discussed and shared their findings on the Wakalet app, offering exposure to diverse perspectives. The incorporation of online resources, such as websites and YouTube, showcased a modern and dynamic approach to research and idea generation.

At the next meeting, the second of the cycle, the focus remained on selected places of interest in Bali. The class started with a familiar ritual, followed by pairs deepening their knowledge with a focus on finding six interesting facts about their chosen place. Using the Padlet app, students collaborate on documenting their findings. They then moved on to drafting their writing individually based on the information gathered in the Wakalet app. The researcher acting as the teacher observed increased confidence in some students who had solidified their ideas in the first meeting of this cycle.

The third meeting marked the continuation of the writing process, with a review of the material on describing places. Although this task required individual writing, the students were actively involved in discussions with their peers. The researcher provided valuable in-class feedback, emphasizing the importance of ongoing guidance. The session ended with Post Test II, which served as an evaluative checkpoint for student progress.

Tabel 4. Post-Test Results of Descriptive Text Writing Using a Scientific Approach Based on MALL Cycle II

Students' Initial Names	Content 30	Organization 20	Grammar 25	Vocabulary 20	Mechanism 5	Total	Level
S1	21	16	20	14	5	76	Good
S2	28	17	20	15	5	85	Good
S3	25	14	22	17	4	82	Good
S4	22	16	18	15	5	76	Good
S5	26	16	20	18	5	85	Good
S6	26	13	17	15	4	75	Good
S7	28	17	21	15	5	86	Excellent
S8	24	18	11	14	4	71	Fair
S9	26	17	20	13	5	81	Good
S10	27	16	22	18	5	88	Excellent
S11	22	15	17	12	4	70	Fair
S12	26	18	14	17	4	79	Good
S13	26	14	14	11	5	70	Fair
S14	26	18	20	17	4	85	Good
S15	25	15	16	13	4	73	Fair
S16	28	16	18	15	5	82	Good
S17	18	13	15	15	4	65	Fair
S18	24	15	18	15	5	77	Good
S19	25	12	22	16	5	80	Good
S20	22	16	17	13	5	73	Fair
S21	22	16	20	16	5	79	Good
S22	22	14	17	16	4	73	Fair
S23	20	15	14	15	4	68	Fair
S24	24	15	17	16	4	76	Good
Average Score	24,29	15,5	17,83	15,04	4,54		

Reflecting on the observations, it became clear that the nature of the action research cycle facilitated adjustments and improvements. Some students showed increased confidence in their writing abilities, which indicated a positive impact on their skill development. The use of technology, collaborative activities and feedback-based approaches seemed to foster a conducive learning environment, which ultimately improved the students' writing ability. It was during cycle II that the writer started show significant improvement. This is evident in almost every aspect of writing that has been improved. The learner's writing proficiency is no longer considered to be low. Fourteen learners, representing 58.4% of the entire student population, are classified as achieving at the "Good" level. 8 students reached the "Fair" level, resulting in 33.3% of the total, while 2 students reached the "Excellent" level, representing 8.3% of the total. The result reveals that encouraging students to use their mobile devices throughout their writing performance can increase engagement and develop a two-way dialogue (Al-Hadithy, 2021). Further, she mentions that mobile device can keep the students' attention and high involvement because it has been shown to be a useful

technique for information transfer. Post-Test 2 results showed a significant increase in students' descriptive text writing skills using the MALL-based scientific approach. Several learners achieved the "Good" and "Excellent" categories, indicating significant progress. There has been an impressive gain in the content aspect, with many learners achieving the highest score. The organization in which students are writing improves consistency in text structure. Grammar demonstrated significant growth, indicating deeper comprehension. The vocabulary aspect can be seen to expand vocabulary richness and accuracy. The mechanism refers to the enhancement of writing mechanics, such as spelling and punctuation. According to the findings, MALL usage encourages the public to engage in a holistic exploration of the subject matter being discussed, which increases their enthusiasm in the topic and promotes deeper comprehension (Sadikin & Handayani, 2019; Boonmoh et al., 2022). The comparison between Pre-Test, Post-Test 1, and Post-Test 2 showed a positive trend in the learning process, where students progressively improved and developed their writing skills. This confirms the effectiveness of the MALL approach in improving students' English language skills, particularly in writing descriptive texts. This study was conducted to determine the increase in scientific approach through MALL to enhance students' writing. The learners were more active in class. Implementing Mobile-Assisted Language Learning (MALL) in classrooms promotes more active participation among participants (Thomas & Munoz, 2019). This can be found that some elements of writing were improved after implementing scientific approach through MALL. Most of the learners were very happy and enthusiastic, especially in developing ideas because they can visually explore the town and public places. This is in line with Huang et al., (2016) who observed that mobile learning tools offer better outcomes in terms of students' engagement and motivation. Therefore, it can be said that MALL offers students the chance to engage actively in all classroom activities.

The organizational aspects can be seen from the learners' comprehension in arranging the ideas of descriptive text into the general structure of descriptive text. In addition, Scientific approach with MALL could help the learners in mastery vocabulary. They improved their vocabulary by listening to the video, e-dictionary. The access allows students to interact with teachers via web and application, saving classroom time. However, teachers may monitor students' development and get vital feedback to determine their true needs and challenges (Kassem, 2018). Also, in the mechanical aspect, the learners got frequently feedback from the teacher, their awareness of the use of punctuation and misspelling in the writing increased. The finding is in line with Alharbi (2022) that learners could show an increased level of engagement with feedback elements such as suggestions, queries, and imperatives and peer feedback was also positively correlated with the improvement of writing skills (Wu & Schunn, 2021). As previously stated, the results indicated that by implementing an empirical methodology through MALL, the abilities of learners in writing descriptive texts could be improved. It is substantiated by the increases in scores from cycle I to cycle II.

D. CONCLUSION

Based on the analysis of the data from the pre-test to the post-test, there was a significant increase in students' proficiency which demonstrates the effectiveness of the MALL approach. These gains reflected improvements in concept understanding, vocabulary usage, and English writing skills. In conclusion, MALL succeeded in significantly improving students' language skills, confirming the importance of technology integration in education to enrich students' learning experience. The importance of adaptation and innovation in the

English language learning process. The use of scientific approach based on MALL has been proven to increase students' motivation, confidence, and proficiency in English. Therefore, the implementation of the strategies suggested above can help to significantly improve the effectiveness of English language learning. However, the study was limited by its use of a small sample of students from a single class to examine in depth their use of MALL in the classroom. Conducted a restricted number of comprehensive interviews. Therefore, the results may not be relevant to teachers who have varied technology usage. Further studies could investigate teacher technological integration, focusing on how they use them and perspectives at large educational settings. Researchers may also investigate how teachers integrated technology into their classes with a variety of tools and resources. This will assist academics in investigating the relationship between school size, teachers' attitudes, and the use of technology in classrooms.

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