

Examining Mobile-assisted Language Learning as an Autonomous Writing Tool for Indonesian Secondary EFL Students

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ABSTRACT

The integration of technology into education has illuminated new dimensions of English Language Teaching (ELT) practices. Although technology-assisted language learning has been introduced in the EFL context for some time, its application as an autonomous learning tool for teaching writing skills remains underdeveloped. This study aims to examine the impact of Mobile-Assisted Language Learning (MALL) when employed as an autonomous learning tool on EFL students' writing skills. Utilizing a qualitative case study design, data were collected through observations, interviews, and document analysis. The findings were categorized into two main themes; the degree of autonomy achieved and

the students' learning behaviors. The results indicate that the advantages of MALL significantly contributed to enhancement of students' autonomous writing skills, as evidenced by an increase in the average writing score from 57.25 to 67.7. This study concludes that both the benefits and limitations of MALL implementation must be considered, as they present significant impacts and potential challenges in achieving a high-quality ELT classroom. Finally, the insights from this study may provide valuable guidance for teachers seeking to incorporate MALL into their writing classroom.

Keywords: autonomous learning, mobile-assisted language learning, writing skills, EFL

INTRODUCTION

The advancement of mobile technology in the English Language Teaching (ELT) has significantly accelerated autonomous learning over the past few decades (Burston & Giannakou, 2022; Karakaya & Bozkurt, 2022; Rajendran & Yunus, 2021), particularly at the secondary education level (Ningsih et al., 2022; Repetto et al., 2023). Despite the long-standing promotion of mobile-assisted language learning (MALL), many English teachers still prefer traditional methods, especially for teaching writing (Pérez-Cañado, 2018). In the context of Indonesian EFL classroom, writing instruction often remains focused on traditional product-oriented approaches, hindering the shift towards mobile-assisted language learning (Handayani et al., 2018; Solihin, 2021). The use of mobile technology in writing classroom is limited by various factors, including insufficient resources, lack of access to educational technology, and the digital literacy of both teachers and students (Lestarina et al., 2022; Misdi et al., 2023; Purwaningrum, 2019).

Writing is a crucial productive skill in language learning. Recent studies have focused on modernizing traditional writing classrooms to better meet students' needs (Ghufron & Nurdianingsih, 2019; Mubarok et al., 2019; Verheijen & Spooren, 2021). An effective approach to address this issue is to emphasize strategies that focus on the writing process rather than just the final product (Karyuatry et al., 2018; Muryani et al., 2024). Traditional, product-oriented method often overlook the writing process, which can lead to high level student anxiety during learning (Purwaningrum, 2019).

Traditional writing classes are often criticized for offering limited motivation and engagement in the context of 21st century learning (Balaman, 2018). According to Karimi et al. (2023), teachers should replace traditional, one-size-fits-all writing instruction with technology-assisted approaches. This shift aims to promote the development of students' higher order thinking skills (HOTS). Moreover, traditional writing instruction tends to be more teacher-centered, which can hinder the development of autonomous learning, particularly in Indonesia (Lengkanawati, 2017).

In this context, examining the integration of mobile technology into English language learning is essential for assessing its impact on students' autonomous writing skills. Previous research on Mobile-Assisted Language Learning (MALL) has investigated its effects on students' writing abilities in relation to autonomous learning. Evidence indicates that MALL is perceived as beneficial for developing learners' writing skills (Kim, 2018), and students generally report positive experiences when MALL is employed as a tool in classroom activities (Handayani et al., 2018). Additionally, another study found that incorporating MALL into writing activities enhances students' sense of ownership, authorship, scholarship, and autonomy (Lee, 2018). Furthermore, MALL facilitates a novel approach to language learning that emphasizes continuous access and interaction (Kukulaska-Hulme, 2013; Oriogu, Ejemezu & Ogbuiyi, 2018). This type of interaction is particularly advantageous for writing instruction, as learners benefit from immediate feedback—whether from teachers or peers—to reflect on and improve their writing (Karyuatry, Rizqan, & Darayani, 2018).

Despite numerous studies exploring factors influencing writing proficiency, most have concentrated primarily on technical aspects (Burston, 2015; Karakaya & Bozkurt, 2022). This focus has resulted in a scarcity of research that addresses students' experience during the implementation of MALL (Hwang & Fu, 2019; Ma, 2017). Furthermore, existing research on MALL predominantly targets elementary and higher education contexts (Morgana, 2018), with limited investigation into its application at the secondary education level.

Given that learner autonomy is considered more challenging at the secondary level in Indonesia (Lamb, 2004), this study aims to investigate

the use of Mobile-Assisted Language Learning (MALL) as a tool for enhancing autonomous writing activities among Indonesian EFL secondary learners. This research is intended to contribute to the advancement of Education 4.0 in Indonesia by integrating emerging technologies, specifically mobile technology, into educational practices to create technology-enhanced learning experiences. The following research question has been formulated to guide the study.

RQ1: “To what extent does the implementation of MALL as an autonomous learning tool enhance the development of students’ writing skills?”

To address the research question, the subsequent sections will elucidate the rationale behind the research methods employed in this study. This section will justify the choice of research method, subjects, sites, and data collection procedures, as well as the framework used for data analysis. Following this, the subsequent section will present the findings of the study, highlighting current trends in MALL and its impact on facilitating students’ autonomous writing achievements.

RESEARCH METHOD

A qualitative case study design was applied in this study to investigate the extent of MALL implementation as an autonomous learning tool for enhancing students’ writing skills. This method was selected to allow the researchers to gather data directly from the field without intervention (Yin, 1994) and to concentrate on a specific group of individuals to gain insight into their perspective on the topic (Cohen et al., 2000). The focus of the study is on the impacts of integrating MALL as a tool for autonomous learning to advance students’ writing skills. Additionally, the case study approach facilitates an in-depth examination of a specific instance within defined parameters (Gillham, 2000; Hamied, 2017). This approach was deemed suitable for the current study, with specifically explores MALL implementation for teaching writing in a secondary school in Indonesia. The study is bounded by several factors: the context (secondary EFL students), the MALL features (both built-in

and social media applications), and the aspect of writing skills, which specifically refers to writing as a productive skill.

The study involved a purposefully selected group of 22 second-grade high school students, chosen based on their relevant learning experiences within the study's context. The selection criteria included: a) learners of mixed abilities and b) familiarity with technology for classroom learning. These criteria were established following the selection of a suitable teacher for the study. The teacher was chosen after a questionnaire survey was distributed to 20 teachers across West Java province. The selected teacher was intentionally chosen due to her prior implementation of MALL in her classroom for at least one year before the study commenced. A consent letter was provided to all participants to ensure their agreement to participate, thereby safeguarding their rights and ensuring ethical conduct (Merriam, 2009).

Data collection involved several methods: observation, interviews, and the collection of students' writing products for data triangulation. Observation was conducted to examine students' behavior during the learning process within the MALL context. Additionally, a focus group interview was held for one hour to gather the students' perceptions on the use of MALL as an autonomous learning tool for their writing activities. Finally, students' writing samples were collected to assess and compare their writing skills before and after the implementation of MALL.

Before conducting the observation, the students' initial narrative writing was assessed by inter-rater evaluators using rubrics that evaluated focus, evidence, organizations, styles, and mechanics. The assessment results were used to identify high and low-achieving students for the purpose of selecting participants for the focus group interviews and to inform the observation process. Subsequently, a semi-structured observation was conducted to examine how effectively students utilized MALL tools during their writing activities. This observation followed a guideline developed from the frameworks of Macaro (2008) and Bajrami (2015), which emphasize students' behavior during the writing process within MALL context. The observations were conducted six times over a period of six weeks, with each session lasting 90 minutes. All sessions were videotaped to facilitate data validation. The observation data were

then analyzed using Macaro's (2008) framework, focusing on the three dimensions of autonomy: autonomy of language competence, autonomy of language learning competence, and autonomy of choice.

Table 1. Display of Observation Data Analysis

	Checklist Items	Side notes
Autonomy of language competence	Students are able to utilize MALL to enhance their capacity to independently generate sentences in their writing	Example: students begin to use their mobile devices to search for ideas to support their writing
...

Table 1 illustrates the analysis of the observation data. The videotaped observations were cross-checked to confirm the accuracy of the data interpretation. To ensure the reliability of the observation data, a face-to-face interview with the teacher was conducted after each session. This interview aimed to clarify and validate the observations, thereby minimizing the potential for data misinterpretation.

Subsequently, a follow-up semi-structured focus group interview was conducted using a guideline developed from Kukulska-Hulme's (2013) framework on MALL implementation and Macaro's (2008) framework on the three dimensions of autonomy. This guideline was designed to enable students to articulate the relationship between MALL affordances and the dimensions of autonomy that support their writing development. The primary focus of the guideline was to investigate how MALL facilitates the autonomy of language competence, particularly in relation to grammar skills for writing. Then, six students participated in the focus group, with three selected from the high-achiever group and three from the low-achiever group. Each student was assigned a code to ensure anonymity and ethical consideration. The focus group aimed to gather insights into students' perceptions of MALL implementation and to compare the impact of MALL on writing abilities across different proficiency levels.

The instruments used for data collection, including the observation checklist and interview guidelines, were validated by experts in English language teaching and autonomous learning. To ensure the reliability of these instruments, a pilot study was conducted. Based on the pilot study

results, the instruments were refined to better align with the context of the current study. As for the interview guidelines, given the semi-structured nature of interviews, which allows the researcher to respond in real-time, the questions remained flexible and were adjusted according to the interviewees' responses.

The interview data were analyzed thematically, following the steps outlined by Clarke and Braun (2013). This analytical technique was chosen for its flexibility and practicality, allowing for a constructionist and critical approach that helps identifying key concepts and ideas within the content (Clarke & Braun, 2013). The first step involved transcribing the recorded interviews. Once the data were converted into written form, the next step was coding. Coding involves assigning labels or categories to the data, which can be predetermined or emergent from the collected data (Cohen et al., 2000). In this study, the categories were derived from the data while adhering to the pre-established framework.

Table 2. Analysis of Interview Data

Question code	Participant	Excerpts	Codes
Q1	#SY (HA)	...	Encourage engagement
	#DZ (LA)	...	Foster independent learning
Q2

Note: HA = High Achiever; LA = Low Achiever, #SY #DZ = Students' Codes

Table 2 illustrates the analysis of the interview data. The codes were derived based on the framework proposed by Kukulska-Hulme (2013) regarding the affordances of Mobile-Assisted Language Learning (MALL). The codes were thoughtfully determined after carefully considering participants' responses and aligning them with the MALL affordances outlined by Kukulska-Hulme (2013). These codes include fostering independent learning, encouraging student engagement, providing immediate feedback on writing, offering ease of use to facilitate the writing process, supporting collaboration and interaction, and enhancing students' noticing ability. After the data were categorized

according to these labels, member checking was conducted to ensure accuracy and prevent any misinterpretation of the data.

At the conclusion of the study, the students' final writing products, posted on their Instagram accounts, were assessed to evaluate the impact of MALL implementation on their writing abilities. The students also participated in the assessment process through peer assessment, using a rubric adapted from Allen (2014). This rubric covered the same assessment criteria, including ideas, focus, evidence, organization, style, and mechanics.

RESULTS & DISCUSSION

The present study revealed that MALL, as an autonomous learning tool, positively impacted the students' writing achievement. This was evident both during the learning process, as observed through the students' demonstrated autonomy, and in their final writing products. A more detailed discussion on the extent to which MALL was implemented as an autonomous learning tool to enhance students' writing skills is provided in the following subsection.

Students' Degree of Autonomy

This study found that students' writing ability improved as a result of the degree of autonomy achieved during the MALL-integrated writing process. Several affordances of MALL, including its flexibility, accessibility, affordability, sophistication, and popularity among younger students (Al-Adwan et al., 2018), were identified as contributing factors to this improvement. In particular, accessibility and flexibility were reported to be especially beneficial during the writing process.

The study identified six indicators that influenced the achievement of students' autonomy within the context of the research. These indicators were categorized based on Kukulska-Hulme (2013) framework on the affordances of MALL. The indicators include fostering independent learning, encouraging student engagement, providing immediate feedback, offering ease of use, supporting collaboration and interaction, and enhancing noticing ability. Each indicator contributed to the degree of

autonomy achieved, which in turn enhanced the students' writing ability.

Dimension of Autonomy of Choice

The majority of students in this study indicated that the implementation of MALL during writing activities fostered their independence. This independence in learning contributed to the achievement of autonomy, specifically related to the dimension of autonomy of choice. This dimension refers to the broader opportunities provided to students, including the ability to contribute input on learning goals to better align with their needs and preferences (Macaro2008)

The study further observed that, while students were able to choose writing topics based on their own preferences, the teacher's guidance remained essential in ensuring the relevance of those topic. The following comments illustrate the students' perspectives on how technology supported their autonomous learning:

Excerpt 1:

#FA: "I am used to learn by myself, so I like this kind of method. Nowadays, there are many applications to learn English, it is useful for us. For instance, if we look for this (materials), it is available for us."

#SY: "... I learned English by Watching YouTube videos a lot. Because there are many useful YouTube channels... it helps me understand the correct pronunciation"

(Confirming, FGI #FA #SY)

Excerpt 1 demonstrates that the accessibility provided by mobile technology is one of the key factors supporting students' independent learning. Mobile technology offers a variety of free applications that students can select based on the specific skills they wish to improve. Although many students initially aimed to enhance their listening or reading abilities through mobile technology, they acknowledged that it also contributed to their writing improvement in several ways. These benefits include offering resources to help identify writing topics and aiding in the understanding of unfamiliar vocabulary. As a result, students developed greater awareness and

sufficient knowledge to autonomously comprehend, and complete writing tasks assigned by the teacher.

The present study also found that students highly valued the freedom and involvement provided by the teacher in the learning process; even though they were not granted full autonomy. They were observed leveraging their experience with mobile technology to meet the demands of writing tasks effectively.

Excerpt 2.

“For me, I get more freedom to look for inspiration to be used as the topic when I use mobile phone... Also, using mobile phone makes us become more creative in writing.”

(Confirming, FGI #AA)

Excerpt 2 reveals that students perceived the freedom provided by the teacher as having a significant impact on their writing ability. The integration of mobile technology in writing instruction was seen by students as facilitating their search for writing inspiration without constraints. This, in turn, led to increased creativity, as evidenced by their use of learning resources to enhance their writing skills. This creativity was apparent both during the learning process and in their final writing products (see Figure 1). Students were observed effectively utilizing accessible applications on their mobile devices throughout all stages of writing, from planning to editing. In the editing stage, they showcased their creativity through their Instagram posts, as illustrated in Figure 1.

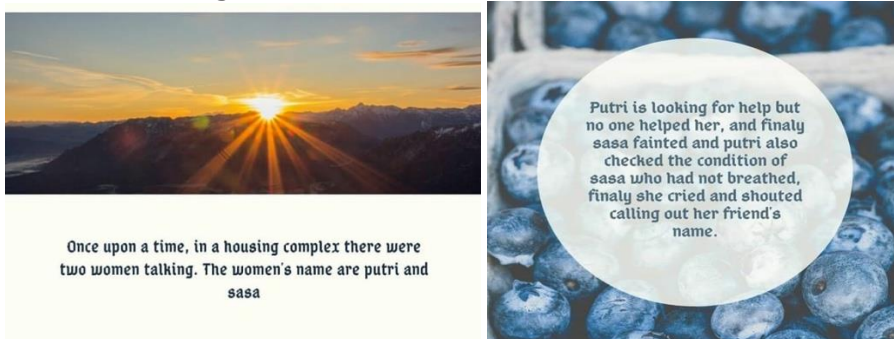


Figure 1. Samples of Students' Writing Posted on Instagram

Figure 1 displays samples of the students' final writing products posted on the Instagram platform. It was observed that students took pleasure in editing their writing before sharing it on Instagram. They used various editing applications on their mobile devices to enhance their writing and capture the attention of their audience. Given Instagram's nature as a social media platform where users can view each other's posts, students were motivated to ensure their writing was suitable for public consumption. This led to a notable improvement in their writing abilities.

This finding aligns with the study by Chen et al. (2018), which reported that when students are involved in decision-making, they are more likely to take initiative in their own learning, as they perceive greater control over their educational experience. Similarly, the results are consistent with Suherdi's (2019) research, which emphasized the success of technology implementation in language learning for fostering creativity, particularly when students have enjoyable experiences and positive prior knowledge of using the technology. Additionally, the present study addresses the concerns raised by Shadieff, Hwang, and Liu (2018) regarding the lack of evidence on the effectiveness of MALL in autonomous learning. The findings serve as evidence that MALL is effective in promoting autonomous learning, particularly in enhancing students' writing abilities.

Dimension of Autonomy of Language Competence

The second indicator is student engagement in the learning process, which affects the degree of autonomy related to language competence, particularly in writing ability. This study specifically addresses students' grammatical competence, as grammar was identified by the students as a major challenge in learning to write (Hyland, 2003). The findings indicate that students paid increased attention to grammar during writing activities, driven by their belief that improving grammatical competence leads to better writing skills (Karyuatry et al., 2018; Muryani et al., 2024). Students' engagement was observed through their participation and interactions within group setting in the classroom.

Excerpt 3.

#SY: "It is great since we could still be able to discuss actively in WA group. Not only in the classroom."

#DZ: "I am too shy to ask directly in the classroom. I am afraid they will think I do not understand. Thus, I prefer to be engaged in WA discussion."

(Confirming, FGI #SY #DZ)

An interesting aspect of the data presented in Excerpt 3 is that students viewed the online discussion forum as a valuable alternative for actively engaging in the learning process. They felt that online discussions provided a supportive environment where they could confidently ask questions about grammar without fear of judgment. Additionally, to encourage students who were hesitant to participate directly in classroom discussions, the teacher implemented small group activities. This flexible grouping strategy was a deliberate effort to ensure all students could engage actively in the learning process. Such activities were part of the teacher's approach to helping students achieve grammatical competence, which in turn could accelerate their writing abilities.

The current investigation found that MALL facilitated students' engagement in learning to write by promoting a degree of autonomy in language competence. The students were observed to make gradual progress in achieving grammatical competence with the aid of MALL, which enabled active participation in writing activities both offline and online due to the flexibility of mobile technology. This finding suggests that the use of mobile technologies in writing instruction enhanced students' engagement and interaction (Baleghizadeh & Oladrostam, 2010). Consequently, this improvement in engagement and interaction led to better writing skills, as students were provided with a discussion platform in a more enjoyable environment (Al-Adwan et al., 2018).

It is encouraging to compare this figure with the results reported by Suthiwartnarueput and Ratanakul (2018) in Thailand. Their study found that online discussion platforms helped reduce students' learning anxiety by providing a more comfortable

environment for the writing process. This reduction in anxiety, in turn, encouraged greater student engagement in the learning process.

In addition to enhancing student engagement during the learning process, the implementation of MALL was also found to have a significant impact on students' writing skills acquisition by providing immediate feedback.

Excerpt 4.

"It is very helpful to get feedback from other people. It is different with writing (in a paper). If we write (in a paper), it needs to be read first, which takes too much time... So, when we get feedback, it is helpful for the revision process."

(Confirming, FGI #SY)

This study reported that students highly valued the immediate feedback they received during their writing activities in the MALL context, especially in comparison to the feedback received in conventional writing instruction. The applications used in the MALL environment played a crucial role in this process. For instance, the WhatsApp (WA) application was found to offer features that facilitated the exchange of immediate feedback between peers. Figure 2 presents a sample of peer feedback that contributed to the revision of a writing draft.

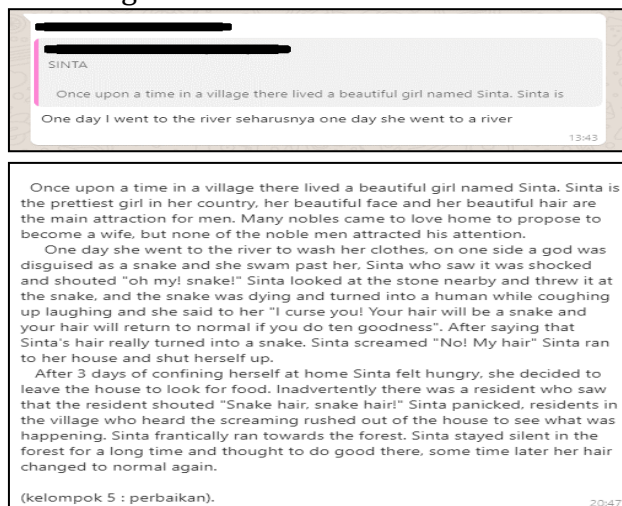


Figure 2. Sample of feedback in the WA group

Figure 2 illustrates how students in the MALL environment benefited from immediate feedback throughout their writing process, as shown by their prompt revisions in response to the feedback. The WhatsApp (WA) platform enabled the teacher to monitor student interactions and provide additional feedback, thereby supporting and encouraging students during their writing activities (Reinders, 2010). This indicates that using WA as a medium within MALL for writing instruction fosters social interaction and facilitates the receipt of immediate feedback (Jee, 2011; Kukulska-Hulme & Viberg, 2018). The feedback received validated the resources on mobile devices and aligned with the teacher-designed learning activities (Reinders, 2018). Regarding the benefits of MALL as an autonomous learning tool, this finding is linked to the dimension of autonomy of language competence. Grammatical structure emerged as the most frequent type of feedback received and provided by students, reflecting their focus on improving grammatical competence to enhance their writing. Thus, it can be inferred that by acquiring a certain degree of autonomy in language competence, students were able to leverage MALL to improve their writing skills.

The next indicator, noticing ability, is also closely linked to the degree of autonomy in language competence obtained by the students. This indicator refers to the students' capacity to recognize their strengths and weaknesses during the writing process. In this study, students demonstrated a strong noticing ability, in recognizing their writing mistakes.

Excerpt 5.

#SY: *"It is easy to analyze using the tools in the media provided in the notes we used, so it is very easy to point out if there are any mistakes."*

#DA: *"When writing using mobile phone, it can be easily translated online to English first, so we know what kind of words we need to use in English."*

(Confirming, FGI #SY #DA)

Excerpt 5 indicates that students perceived MALL as facilitating the development of their noticing ability during the

learning process. It was found that students effectively used the features of various applications to enhance their writing by identifying errors they had made. This led to greater reflection on their own strengths and weaknesses during the learning process (Chen et al., 2018; Krishan et al., 2020; Shadiev et al., 2018). Consistent with the literature, this study confirmed that MALL, as a tool for autonomous learning, has a significant impact on students' writing abilities by enhancing their noticing ability (Krishan et al., 2020; Kukulska-Hulme, 2013). The students' attitudes in this study align with those described by Karyuatry et al. (2018), who noted that students learn and reflect from their peers while using technology for writing instruction. This noticing ability is closely related to the degree of autonomy in language competence. Although measuring language competence is often considered challenging (Macaro, 2008), this study demonstrated that students' progress served as a strong indicator of their development.

Dimension of Autonomy of Language Learning Competence

Another indicator found in this study is related to the ease of use provided by MALL, which facilitate students' writing. This study revealed that students had positive opinions about MALL as a tool that enables speedy and effortless writing.

Excerpt 6.

"If we use mobile phone, it is easier to type. If we write manually, it is tiring. Also, it is quicker to type in mobile phone."

(Confirming, FGI #DZ)

Excerpt 6 shows that students perceived typing on their mobile devices as helping them complete their writing tasks more quickly. This advantage is related to their habitual use of mobile phones in daily life. Additionally, students preferred writing on their mobile devices because they were familiar with the apps they frequently use. Consistent with these results, previous studies have demonstrated that using well-known mobile apps significantly improves students' overall writing performance (Aghajani & Adloo, 2018).

The dimension of autonomy relevant to this indicator is the dimension of autonomy of language learning competence. Based on students' perceptions of MALL's ease of use, they were observed to have a strong awareness of its potential as a learning strategy for writing instruction. Additionally, by utilizing MALL to complete their writing tasks on demand, students were able to effectively expand their writing experience and leverage their prior knowledge. It is important to note that the dimension of autonomy of language learning competence involves students' awareness of the learning strategy and their ability to gain experience and knowledge through its application (Macaro, 2008). The next indicator revealed that MALL integration facilitates collaboration and interaction among students during the learning process, particularly evident in online discussions. High-achieving students were observed to dominate interactions by leading discussions within their small groups and actively providing feedback. In contrast, low-achieving students tended to follow the group discussions more passively and rarely interacted with other groups. Despite this, the discussions often resulted in constructive peer feedback. Although most feedback focused on grammatical structure, it was found to be beneficial for students in acquiring language competence by aiding in the gradual improvement of their grammar.

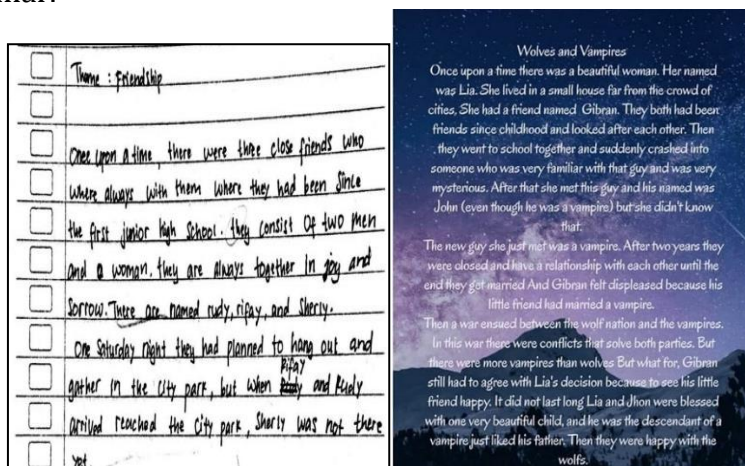


Figure 3. Comparison of Student's Initial and Final Writing

Figure 3 shows how the autonomy of language learning competence acquired by the students facilitated their gradual progress toward achieving grammatical competence. This improvement in grammatical competence significantly enhanced their writing skills. The comparison shows a marked improvement in the grammatical structure of the students' final writing compared to their initial writing. As a result, the average writing score from 57.25 in the initial writing turn into 67.7 in the final writing.

It is worth noting that in this study, the writing task was constrained to the extent that students could produce effective writing utilizing MALL. With the autonomy of language learning competence attained, students were observed to accomplish the task demands effectively. In summary, the gradual improvement in students' writing skills can be attributed to the affordances of MALL, particularly its support for collaborative interaction.

As a concluding remark, it can be inferred that the students' achievement in writing skills has been significantly influenced by the degree of autonomy attained during writing activities using MALL. This conclusion is supported by the six indicators discussed in this subsection, which are closely related to various dimensions of autonomy. The affordances of mobile technology utilized in the MALL implementation were integral to these indicators. Additionally, the study indicates that MALL has the potential to be effectively implemented in the Indonesian EFL context, provided that certain adjustments are made.

CONCLUSION

This study argues that integrating of MALL as an autonomous learning tool is beneficial for improving the writing skills of Indonesian secondary EFL students. The most obvious finding is that the degree of autonomy achieved while learning to write in a MALL environment resulted in a significant enhancement of the students' writing skills.

The degree of autonomy obtained by students was clearly influenced by the interaction and collaboration among them during the MALL-based learning process, as well as by the immediate

feedback and ease of use offered by MALL. Collectively, these findings support the idea that implementing MALL in the EFL classroom is beneficial for improving students' writing skills, leading to increased autonomy and confidence in their writing abilities. This study contributed to our understanding of how MALL can be optimally utilized in the EFL classroom by taking into account students' needs and prior knowledge.

However, the background knowledge of the students participating in this study limits the generalizability of the findings regarding writing skill improvement. Additionally, the scope of this study was confined to the EFL classroom, which serves as the context for the MALL implementation. Despite these limitations, the insights gained offer valuable perspectives on the impact of using MALL as an autonomous learning tool in secondary EFL classrooms. These insights can help educators explore alternative strategies for integrating MALL into their writing instruction, potentially enhancing their teaching practices.

Despite the limitations, the study suggests that MALL can be beneficial for students if teachers facilitate and monitor the learning process effectively. Continued efforts are needed to ensure MALL is accessible to all students. Teachers should assess students' readiness to use mobile technology for learning. Further research is necessary to explore MALL implementation in broader contexts, including developments in using MALL beyond the traditional classroom setting that have emerged in recent years.

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