

DOI: <https://doi.org/10.34069/AI/2023.62.02.7>

How to Cite:

Yucedal, H.M. (2023). Integrating mobile assisted language learning (MALL) into EFL classes at a tertiary level. *Amazonia Investiga*, 12(62), 92-104. <https://doi.org/10.34069/AI/2023.62.02.7>

## Integrating mobile assisted language learning (MALL) into EFL classes at a tertiary level

### Yükseköğretimde Mobil Destekli Dil Öğreniminin (MDDÖ) EFL sınıflarına entegrasyonu

Received: January 19, 2023

Accepted: March 3, 2023

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#### Abstract

Mobile Assisted Language Learning (MALL) practices have gained increasing popularity thanks to the advancements in mobile technologies. Accordingly, a growing number of initiatives have been taken to integrate it into language learning process. However, a gap in the literature has been observed to measure the effects of MALL on students' writing competence at a tertiary level in Iraq. To this aim, it was sought to pinpoint the influence of MALL on 60 Language Preparatory School students' writing competence at TISHK International University by employing snowball sampling technique within 12 weeks in 2021-2022 Academic Year. The study was conducted in an Academic Writing course that required the students to write an essay weekly. The data were collected via exams, a questionnaire, an interview and a survey which were analyzed either by SPSS 23. or MAXQDA software applications in this mixed methods design study. Control group students received a traditional instruction, while experimental group students were trained based on the procedure of MALL. The findings unearthed that MALL practices increased students' marks dramatically, boosted students' motivation and increased students' overall attitudes towards learning English. The findings of this study can have some implications for the educators who consider the implementation of MALL practices at educational institutions.

**Keywords:** Mobile Assisted Language Learning, Academic Writing, Writing Competence.

#### Introduction

Mobile assisted language learning (MALL hereafter) has gained considerable momentum

#### Özet

Mobil Destekli Dil Öğrenimi (MDDÖ) uygulamaları, mobil teknolojilerdeki gelişmeler sayesinde giderek artan bir popülerlik kazanmıştır. Buna göre, dil öğrenme sürecine entegre etmek için giderek artan sayıda girişimde bulunulmuştur. Bununla birlikte, MDDÖ'nün Irak'ta öğrencilerin üçüncül düzeyde yazma yeterlilikleri üzerindeki etkilerini ölçmek için literatürde bir boşluk gözlenmiştir. Bu amaçla, 2021-2022 Eğitim-Öğretim Yılında 12 hafta içinde kartopu örnekleme tekniği kullanılarak TISHK International University'de 60 Dil Hazırlık Okulu öğrencisinin yazma yeterliliği üzerinde MDDÖ'nün etkisinin belirlenmesi amaçlanmıştır. Çalışma, öğrencilerin haftalık olarak bir makale yazmalarını gerektiren bir Akademik Yazma dersinde gerçekleştirilmiştir. SPSS 23 ve MAXQDA tarafından analiz edilmiş veriler, sınav, anket, mülakat ve karma metod yoluyla toplanmıştır. Kontrol grubu öğrencileri geleneksel bir eğitim alırken, deney grubu öğrencileri MDDÖ prosedürüne göre eğitildi. Bulgular, MDDÖ uygulamalarının öğrencilerin notlarını önemli ölçüde artırdığını, öğrencilerin motivasyonunu artırdığını ve öğrencilerin İngilizce öğrenmeye yönelik genel tutumlarını artırdığını ortaya koydu. Bu çalışmanın bulguları, eğitim kurumlarında MDDÖ uygulamalarının uygulanmasını düşünen eğitimciler için bazı etkilere sahip olabilir.

**Anahtar Kelimeler:** Mobil Destekli Dil Öğrenimi, Akademik Yazma, Yazma Yeterliliği.

since the 2000s when a wide spectrum of portable electronic devices such as laptops,

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mobile phones, tablets and PDAs were widely available to serve people at educational institutions. Additionally, modern teaching methods such as collaborative learning, gamification and project-based learning have required the educators to adopt the shift from teacher centred to student-centred approach which can be accelerated with MALL (Bernacki et al., 2020; Kara, 2023). Modern teaching methods emphasize that learners can construct their knowledge in a community where they can exchange their ideas freely. Moreover, they emphasize that learners can assume more responsibility in the learning process rather than staying passively. In addition, learners are encouraged to research by different sources, so they can grasp details out of curiosity. In this regard, mobile assisted language learning offers ample opportunity to meet the needs of the students and teachers. Mobile devices offer several advantages to users such as portability and connectivity which increases the value of them in education (Rocque, 2022). Once the learners have portable devices which are equipped with an internet connection, their motivation and engagement increase correspondingly (Celik et al., 2022). It can be assumed that the utilization of mobile devices can help unlock the full potential of learners with a well-balanced and monitored plan.

Mobile devices are versatile to satisfy users' needs in many fields. They have increased their popularity in social life recently. Users are able to text, send an email, do online shopping, watch videos, make a video call, follow the latest news, activate the navigation, book a room at a hotel or table in a restaurant etc. Similarly, mobile devices have been widely used in education (Grigoryan, 2022; Kara & Yildiz, 2022). For example, mobile devices have been employed to offer or receive online or hybrid education. Additionally, teachers can upload their video lessons to be watched by the students or general public. Thus, viewers can have ample opportunity to watch several times and fill the knowledge gaps if they miss some points during regular courses. In addition, teachers can send some links to take online quizzes. Once they take the quizzes, item analysis can be sent, so students can be granted the rights to see their mistakes and get valuable lessons in order not to repeat them in the following quizzes. Offering some quizzes online can help save the environment as well as saving time and energy. Furthermore, parents can benefit from mobile devices to get detailed feedback about their children via learning management systems (LMS). Mobile devices can be of greatest importance to monitor the children

and communicate with the teachers instantly (Alamer & Al Khateeb, 2023; Kara, 2020). Assignments are learning exercises assigned by teachers to promote student growth. Likewise, mobile devices can help individuals to expand their knowledge in many fields (Dayan & Yildiz, 2022). For instance, a cook can learn about unique recipes; an engineer can grasp some tips on how to construct stronger buildings; an artist can figure out how to draw more creatively; a retired person can be inspired on how to take up a new hobby; an enthusiastic learner can master a new language; parents can be guided on how to raise good children etc. It can be argued that mobile devices are at the heart of people's lives with varying functions in many aspects.

MALL opportunities have arisen to improve learner's four core skills of English Language Learning. MALL occurs when traditional classroom teaching is supported by mobile devices (Bernacki et al., 2020). There are many reflections of it to develop different skills. For instance, learners can listen and take relevant revision tests with their mobile devices. Additionally, they can read e-books to develop their pronunciation and enhance their comprehension. After that, they can improve their speaking in a video conference by expressing their ideas individually or as a team. Apart from other skills, MALL is activated to develop learners' writing skills. For instance, learners can read the sample paragraphs and essays electronically before writing, so they will be familiar with the overall organization or key words to insert into their own writing works. In addition, learners can submit their works electronically via Google Form, WhatsApp or Viber. Once they submit their works electronically, the teacher can manage and highlight them with ease. Additionally, learners' enthusiasm increases when they submit electronically because typing is expected to take less time than writing on the paper. Furthermore, teacher can send his/her feedback to evaluate their writing electronically. Moreover, peer-learning can be used once the teacher can display a student's work and wait for the feedback from his/her classmates via their mobile devices (Abubakr & Kara, 2022). Considering these positive implications in education, MALL initiatives are expected to increase at educational institutions on a global scale.

This study investigated the effects of MALL on enhancing students' writing performance. In this respect, mobile devices and online writing submission applications were employed as primary instruments to receive students' writing

works periodically based on the pre-defined plan by the researcher. Considering this framework, following research questions were formulated:

Does MALL enhance students' writing performance at a tertiary level?  
Does MALL pave the way for changing students' attitudes towards Academic Writing course?

### Literature Review

Educators struggle to instill a love of reading in technology-obsessed students (Yildiz, 2020). However, MALL has arisen as the combination of mobile learning and computer-assisted language learning to assist educators. In other words, it has come out to enrich students' traditional learning atmosphere with some information and communication technology tools such as laptops, cell-phones, tablets and PDAs. Although there were tiny steps to implement MALL in classes earlier, the process accelerated dramatically after the 2000s. Pioneering attempts to increase the use of MALL in education include Dicky's teleconferencing to teach English conversation to Korean students, Stanford University's lab to teach Spanish with mobile technologies, Thornton and Houser's course management system Moodle, Wisconsin University's several language course enriched by mobile technology, Duke University's decision to provide free iPod for freshman students (Abdulameer, 2021). Upon noticing their positive influences on language learning and teaching environment, they have been used widely in increasing numbers (Ulker et al., 2021).

Currently, proliferation of mobile technologies is transforming traditional teaching practices all over the world accordingly. There are several theoretical foundations of MALL expressed by scholars. To name a few, Norbrook and Scott (2003) assert that portability and immediacy are key factors to employ MALL practices in educational institutions. Additionally, McNicol (2004) attests that MALL is convenient for learners as they are flexible to watch any content at any time with their hand-held devices. After that, Kara (2023) contends that mobile learning allows individuals to receive online education throughout the world, so it offers unmatched opportunities for learners to earn a degree, certificate or expand their knowledge for life-long learning. However, it does not necessarily mean that MALL does not pose any risks. To illustrate, Chinnery (2014) states that having a tiny screen, unaffordability, the necessity of recharging, unable to type efficiently, the

possibility of distracting the attention with other notifications or websites, unable to develop digital literacy skills are some barriers which are prevalent.

A growing volume of research has been conducted to measure the effectiveness of MALL in different contexts globally. To name a few, Gheytsi et al., (2015) found that MALL yielded better results to develop reading comprehension skills of Iranian high school students. Similarly, Plana et al., (2013) investigated university students who were taking English classes in a mobile enriched atmosphere which revealed that MALL enhanced students' reading scores. Likewise, Ishikawa et al., (2014) examined the influence of a mobile reading application employed in a Japanese university which unearthed that e-reading activities helped students expand vocabulary and improve reading comprehension.

Apart from reading, some studies have been conducted about the effects of MALL on listening skills. For instance, Alabsi (2020) conducted a study in Saudi Arabia at a tertiary level which concluded that assigning students to add subtitles to the video with their mobile devices increased their listening scores and overall English proficiency. Likewise, Terantino (2016) carried out a study in the USA on pre-school children who were exposed to an instruction with their tablets. The study revealed that students increased their word-power and listening comprehension tremendously.

Subsequently, Abdulrahman and Kara (2023) conducted a study to watch movies and read books simultaneously in Iraq context at a tertiary level which unearthed that students' speaking skills have developed substantially once they integrated mobile tools into traditional classrooms. Similarly, Almadhady and Bahrum (2020) conducted a study in Iraq to receive university students' perceptions on MALL which revealed that students have positive views about the effects of MALL on their speaking enhancement.

Regarding the influence of MALL on writing performance, several studies have been carried out as well. To name a few, Dwigustini, et al., (2021) offered a hybrid education at a university in Indonesia in a writing course which revealed that students' writing marks increased dramatically once they used their mobile devices to enhance their learning. Likewise, Morchid (2020) found that Moroccan university students progressed considerably in terms of writing after

being subjected to a MALL based instruction including texting, transcribing the podcasts and taking notes while playing educational games. Likewise, Wang and Smith (2013) integrated MALL into their classes in Japan which revealed that the students who received reading and grammar materials via mobile devices showed remarkable achievement at the end of the study. Considering the aforementioned studies, it can be argued that MALL offers many advantages in different contexts at different stages of education.

Regarding grammar, Azeez and Al Bajalani (2018) investigated the relationship between grammar marks and MALL in Iran context on university students which revealed that recording sentences and forwarding to the teacher to get a valuable feedback via mobile devices increased students' accuracy in multiple choice format grammar tests.

**Methodology**

A mixed methods design was adopted in the present study which required using Quantitative and qualitative research methodologies consecutively, so limitations of each method could be compensated and positive sides of each research method was emphasized. Two writing exams, a questionnaire and a survey and an interview were held to collect data. The exams were designed to collect, quantitative data, whereas the questionnaire and the survey were activated to collect qualitative data. Bentahar and Cameron (2015) attest that the implementation of a mixed methods design allows researchers to collect, cross-check and validate results reliably.

**Participants, Setting and Sampling Procedure**

This study was undertaken at Tishk International University (TIU henceforth) in Erbil, Iraq, where around five thousand students studying in twenty-nine departments were enrolled in 2021- 2022 Academic Year. This private institution provides instruction in English, allowing diverse groups from many ethnic backgrounds to obtain a top-notch quality education. This study included one hundred students who graduated from TIU Language Preparatory School's intensive English training program. Snowball sampling technique was employed in this study which required the initial participants to invite other students with shared qualities to join. Initial participants expanded the number of sample students based on students' tendencies to write enthusiastically. In other words, the students who could write passionately became the hosts to invite other enthusiastic students in terms of writing. Etikan et al. (2016) assert that snowball sampling alleviates the difficulties encountered while choosing the sample because this non-probable sampling method helps the researcher to reach the participants with the common characteristics, so participants can exchange their ideas and contribute to the study equally. In the present study, the researcher assigned ten students who earned the highest marks in Academic Writing course. Subsequently, each of them chose five more students who were eager to progress in terms of writing in their circle of friends at Language Preparatory School. The rationale to choose snowball sampling technique was to reach the best candidates who could join writing activities within 12 weeks actively. Otherwise, boredom, anxiety, feeling exhausted issues could force the researcher to finalize the study before the expected time. Thus, 60 students were chosen from the population and split into two groups equally to represent control or experimental group. The students were chosen from 14 different departments which could be observed below in Table 1:

**Table 1.**  
*Distribution of participants' departments*

Departments	Frequency	%
Accounting	3	5
Architectural Engineering	4	6.8
Banking and Finance	3	5
Business and Management	4	6.8
Civil Engineering	3	5
Computer Engineering	4	6.8
Dentistry	3	5
Information Technology	5	8.3
Interior Design	4	6.8
International Relation and Diplomacy	3	5
Mechatronics Engineering	4	6.8
Medical Analysis	8	13.3
Nursing	3	5
Pharmacy	9	15
Total	60	100

Table 1 illustrated that participants' departments ranged from accounting to pharmacy. Additionally, it was observed that pharmacy students were followed by medical analysis ones

in terms of the highest number of participants. Apart from students' departments, faculties of students were visualized in Table 2.

**Table 2.**  
*Distribution of participants' faculties*

Departments	Frequency	%
Administrative Sciences and Economics	13	21.7
Applied Sciences	13	21.7
Dentistry	3	5
Engineering	19	31.7
Nursing	3	5
Pharmacy	9	15
Total	60	100

Table 2 depicted participants' faculties which encompassed six out of eight faculties at university. According to the figures, it was noticed that faculty of engineering students were the highest ones with 19 members (31.7 %).

Additionally, dentistry and nursing students were the least ones with 3 members respectively (5 %). Participants' ages and genders were also given in Table 3.

**Table 3.**  
*Participants' frequency in terms of gender and age*

Variable(s)	Option	F	%
Gender	Female	24	40
	Male	36	60
Age	18-21	42	70
	22+	18	30
Total		30	100

Table 3 analysis revealed that male students (60%) outnumbered female students (40%) with 36 and 24 members respectively. Along with the participants' genders, the participants' ages were also shown in detail, unearthing that 70% of the students were between the ages of 18 and 21, while 30% were 22 or older.

### Data Collection Procedure

This study was commenced and finalized in an Academic Writing course through which students expanded their knowledge with a well-planned syllabus as 3 hours per week because TIU LPS administration acknowledged the importance of spoken and written English and designed the classes accordingly. In the first semester, the researcher had laid the background for Academic Writing, so the students were exposed to writing 4 paragraph essays in this study. The study lasted for 12 weeks when students were required to write 5 essays regardless of being in control or experimental group. Although both groups were urged to write

5 common essays, the conduct of lessons was considerably different in each group which was illustrated below:

1. What are your reasons to watch movies?
2. If you took up a new hobby, what would it be?
3. Will the life be easier in the 2050s?
4. What is the most harmful type of pollution? What are some ways to eliminate it globally?
5. Do you prefer having online or in-person classes to earn a degree at a university?

### The Cycle of Lessons in Control Group

The instructor showed the examples of traditional and MALL based writing instruction within 2 weeks, so that the participants could weigh the pros and cons of each at the end of the study. In the third week, the instructor switched to traditional writing instruction according to the pre-defined plan. The instructor covered the lesson by applying the rules of pre, while and post writing. To illustrate, the instructor drew a

mind map about the topic, so each student contributed to the brainstorming process. They learned how to organize their outlines by the mind-map they drew in cooperation. In the next phase, each student came to a decision about the outline which would serve as a map while writing for each student. The instructor examined each student's outline and offered feedback if there were some parts which needed minor or major modifications. In the subsequent stage, the instructor and students wrote a sample essay on the same topic in cooperation, so they learned how to introduce, expand and finalize the essay based on the regulations of Academic Writing course. Upon completion of the sample essay, the students commenced writing their own essays within 30 minutes. The instructor set the timer to train students on racing against time during the exams throughout their education. Once they completed writing, students submitted their works on a piece of paper as in line with traditional writing model. In the second lesson of the week, the instructor offered feedback for each student and highlighted common mistakes. Afterwards, the instructor urged the students to analyse some sample essays available on different websites. They read and discussed some details to write more creatively in the following weeks. Finally, the instructor informed the students about their marks based on the rubric and suggested some students to rewrite the same topic considering the instructor's feedback on the paper. The instructor justified his/ her decision to urge some students to write one more time by granting them a chance to learn from their mistakes and master writing academically. It can be stated that control group students were exposed to a traditional based writing instruction which was quite different in experimental group.

### **The cycle of Lessons in Experimental Group**

The instructor showed the examples of traditional and MALL based writing instruction within 2 weeks, so that the participants could weigh the pros and cons of each at the end of the study. In the third week, the instructor switched to MALL based writing instruction according to the pre-defined plan. The instructor covered the lesson by applying the rules of pre, while and post writing. To illustrate, the instructor drew a mind map about the topic, so each student contributed to the brainstorming process. They learned how to organize their outlines by the mind-map they drew in cooperation. In the next phase, each student came to a decision about the outline which would serve as a map while writing for each student. The instructor examined each

student's outline and offered feedback if there were some parts which needed minor or major modifications. In the subsequent stage, the instructor and students wrote a sample essay on the same topic in cooperation, so they learned how to introduce, expand and finalize the essay based on the regulations of Academic Writing course. Upon completion of the sample essay, the students commenced writing their own essays within 30 minutes. The instructor set the timer to train students on racing against time during the exams throughout their education. Once they completed writing, students submitted their works on a piece of paper. In the second lesson of the week, the instructor offered feedback for each student and highlighted common mistakes by displaying the screenshots of students' works without naming any student. The instructor activated peer-learning, so students could find their friends' mistakes and offered a valuable feedback to make corrections. Afterwards, the instructor urged the students to analyse some sample essays available on different websites as a pair work activity. They read and discussed some details to write more creatively in the following weeks. Finally, the instructor informed the students about their marks based on the rubric and suggested some students to rewrite the same topic considering the instructor's feedback on the paper via a Google Form link which was available on TIU LPS Academic Writing Course Lecture Notes. The instructor justified his/ her decision to urge some students to write one more time by granting them a chance to learn from their mistakes and master writing academically. The instructor welcomed second submissions electronically on purpose because writing for the second time on the paper can be tedious and time consuming for a lot of students. On the other hand, typing via virtual or on-screen keyboard was more convenient for students all of whom were digital natives. It can be stated that experimental group students took advantage of benefits of in person and online learning opportunities equally.

### **Findings**

Findings of this study were classified under 4 headings which were the questionnaire, the survey, the interview and descriptive analysis, so each instrument was elaborated to get detailed analysis and make interpretations accordingly.

### **The Analysis of the Questionnaire**

Table 4 shed light on students' opinions in the questionnaire.

**Table 4.**  
*Control group students' responses*

ITEMS	Mean	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree			
		%	f	%	f	%	f	%	f	%	f		
1. Receiving the instruction traditionally was a fruitful period for me to improve my writing skills.	2.13	7 %	2	7 %	2	23%	7	19 %	6	44%	13		
2. I did not get bored while receiving Academic Writing course in a traditional format.	1.8	0 %	0	0%	0	23	7	33 %	10	44	13		
3. I did not lose my enthusiasm towards writing when I received the instruction in an orthodox format.	2.3	%	10	3	12 %	4	17 %	5	%	17	5	44%	13
4. I think integrating mobile devices into writing class has a lot of drawbacks.	1.46	0 %	0	0 %	0	0%	0	47%	14	53%	16		
5. I wish I had joined this program earlier.	1.26	0 %	0	0 %	0	%	0	0	27%	8	73%	22	
6. My instructor's teaching style was inspiring.	2.33	0 %	0	0 %	0	60 %	18	13 %	4	27 %	8		

The participants in control group responded to six items to pinpoint their sincere perspectives on the implementation of traditional writing class which was explored in detail below:

Item 1 analysis indicated that most students did not consider this period as a fruitful one with a 2.13 mean score. To illustrate, two students (7 %) chose strongly agree and agree options respectively, however, seven students (23 %) chose neutral; six students (19 %) chose disagree and thirteen students (44 %) chose strongly disagree. These figures hinted that students were not satisfied with the instruction offered during the study.

As shown in item 2, regarding feeling bored, the mean score was only 1.8 which revealed that the majority of the students got bored. To name a few, no student chose strongly agree or agree options. On the other hand, seven students (23 %) chose neutral; ten students (33 %) chose disagree and thirteen students (44 %) chose strongly disagree. It can be hinted that motivational tools were missing to capture students' attention.

Item 3 was designed to pinpoint students' enthusiasm which indicated that a lot of students did not increase their enthusiasm considering the mean score which was 2.3. To illustrate the figures, three students (10 %) opted in strongly

agree, and four students (12 %) chose agree. On the other hand, five students (17 %) chose neutral; five students (17 %) chose disagree and thirteen students (44 %) chose strongly disagree.

Once item 4, which was related to integrating mobile devices into writing classes, was examined, it was observed that the mean score was only 1.46. To name a few, no student chose strongly agree, agree or neutral. On the other hand, fourteen students (47 %) chose disagree, and sixteen students (53 %) chose strongly disagree which unearthed that students had no hesitation to expand learning with mobile technologies.

Item 5 was designed to figure out whether students regret not having joined such a program earlier which revealed that they did not have regret about not having joined such a study. In the same vein, the mean score was 1.26 which was the lowest in the questionnaire. Additionally, no student chose strongly agree, agree or neutral options. However, eight (27 %) and twenty-two (73 %) students chose disagree and strongly disagree respectively.

The last item was directed to evaluate the instructor's performance while offering traditional writing instruction which revealed that the satisfaction rate was quite low with a 2.33

mean score. To illustrate, no student chose strongly agree, agree options. However, eighteen students (60 %) raised their concerns by choosing neutral. Likewise, four (13 %) and eight students (27 %) chose either disagree or strongly disagree

respectively. These figures hinted that the type of instruction mattered although the instructor did his/her best professionally in the classroom atmosphere.

**Table 5.**  
*Experimental group students' responses*

ITEMS	Mean	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
		%	f	%	f	%	f	%	f	%	f
1. Receiving the instruction with MALL technologies was a fruitful period for me to improve my writing skills.	4.56	63 %	19	30 %	9	7%	2	0 %	0	0	0
2. I did not get bored while receiving Academic Writing course via MALL enriched format.	4.83	83%	25	17%	5	0%	0	0%	0	0%	0
3. I did not lose my enthusiasm towards writing when I received the instruction in an unorthodox format.	5	100%	30	0 %	0	0 %	0	0%	0	0%	0
4. I think integrating mobile devices into writing class has a lot of benefits.	4.96	97 %	29	3 %	1	0%	0	0%	0	0%	0
5. I wish I had joined this program earlier.	4.93	93 %	28	7	2	0%	0	0%	0	0%	0
6. My instructor's teaching style was inspiring.	5	100 %	30	0 %	0	0 %	0	0 %	0	0 %	0

Experimental group students responded to 6 items as well which unearthed noteworthy findings to consider meticulously.

Item 1 was designed to evaluate the effectiveness of MALL enriched program which revealed that the satisfaction rate was considerably high considering the mean score 4.56. To illustrate, nineteen (63 %) students chose strongly agree; nine students (30 %) chose agree options and two students (7 %) chose neutral. On the other hand, no student chose neither disagree nor strongly disagree. These figures hinted that MALL enriched writing instruction was a promising period.

Considering item 2 analysis which was related to measuring their boredom levels, it was observed that the majority of students did not get bored. Conversely, it can be inferred that they got pleasure while joining activities with mobile technologies. To illustrate, twenty-five students (83 %) chose strongly agree; five students (17 %) chose agree. On the other hand, no student opted in other options.

As shown in item 3, regarding being enthusiastic during the study, all students were enthusiastic enough to join the activities eagerly. The mean score which was 5 hinted that the students' enthusiasm did not fade as the days went by.

Item 4 findings revealed that all students took side with integrating MALL activities into writing classes with a 4.96 mean score. It can be inferred that mobile technologies can increase students' motivation dramatically.

Item 5 was designed to figure out whether students regret not having joined such a program earlier which revealed that they regretted about not having joined such a study. In the same vein, the mean score was 4.93 which was one of the highest ones in the questionnaire. All students opted in either strongly agree or agree options. In other words, no student chose neutral, disagree or strongly disagree.

The last item was directed to evaluate the instructor's performance while offering traditional writing instruction which revealed that all students appreciated the efforts of the

instructor without any hesitation. These figures hinted that the type of instruction and the instructor's efforts complemented each other to develop students' writing skills.

Considering all findings of the questionnaire, it can be concluded that students' overall

satisfaction rate was substantially higher than the findings for control group students. In other words, MALL yielded better results in terms of earning students' appreciation.

### The Analysis of the Survey

**Table 6.**

*Participants' opinions on traditional writing activities*

Categories	Frequency	%
Boring	27	90
Monotonous	28	93.3
Teacher-centred	30	100
Tiring	25	83.3
Time-consuming	19	63.3
Losing enthusiasm	29	96.7

Based on the survey results in Table 6, the participants emphasized some terms as the distinguishing qualities of traditional writing instruction. They emphasized them as teacher-

centred, losing enthusiasm, monotonous, boring, tiring and time-consuming in a descending order from 30 to 19.

**Table 7.**

*Participants' opinions on mall activities in an academic writing course*

Categories	Frequency	%
Convenient	29	96.7
Portable	25	83.3
Student-centred	27	90
Modern	30	100
Interactive	28	93.3
Entertaining	21	70

Based on the survey results in Table 4, the participants emphasized some terms as the distinguishing qualities of MALL activities. They highlighted MALL activities as modern, convenient, interactive, student-centered, portable and entertaining in a descending order from 30 to 21.

study when I had to write on the paper. I wish I had had the flexibility to write on the paper or by the keyboard. (Student 8)

### The Analysis of the Interview

#### Control Group Students' Interviews

I received a traditional instruction during the study which was quite boring for me. Once we wrote the essays for the first time, I did not complain about it. I thought that my writing would improve well while writing on the paper. However, writing on the paper for the second time after receiving the first feedback was quite troublesome for me. I am very good at typing on the virtual or on-screen keyboard. It is also less time consuming for me. Additionally, I can zoom in and out to see my mistakes easily before submission. However, I suffered a lot during the

It was not a typical period for me. I learned how to write academically. Although it was monotonous from time to time, I noticed the improvement in my essays. Additionally, writing one more time after the first feedback helped me a lot to see my mistakes and eliminate them in my second attempt. Personally, I prefer learning in a hybrid way which necessitated employing in-person and online learning opportunities. However, I did not mind it. I realized that I learned well when I followed the instructions in a disciplined way. (Student 13)

This study could have produced better results if we had been allowed to use our mobile devices for educational purposes in an Academic Writing course. We had to write and submit on the paper every time, but it was so boring for me. I have no problem about writing on the paper for the first time. On the other hand, I like researching on the

internet about the topic, getting some ideas and composing my own essay for the second submission. I believe that we should read more sample essays before the second submission, so we could expand our knowledge and write more creatively. (Student 17)

My instructor graded my paper and showed my mistakes individually. However, my friends in the other group learned from each other because the instructor displayed each submission on the smart board and asked the students to correct the mistakes. Additionally, they zoomed in and out according to the need. However, we could not learn from each other in the study. We wrote and the instructor graded. I need more interaction and collaboration to improve my writing skills. (Student 25)

I read a lot of articles about the role of technology in education. They assert that integrating technology into classes can pay off if planned and monitored successfully. However, the conduct of lesson was so monotonous in our study. We brainstormed, wrote, received feedback and rewrote. The cycle could be enriched with mobile devices to increase the satisfaction of the students. (Student 29)

### Experimental Group Students' Interviews

It was a beneficial study for me because I expanded my writing skills dramatically. I noticed that MALL activities enriched our learning and increased our motivation to write more creatively. In addition, it was a piece of cake to type and send the second submission electronically. I used to write for long hours in the past. Now, I compose my ideas within 20 minutes through the internet and merge my own ideas harmoniously thanks to mobile technologies which were allowed to use actively in this study. I am glad to be a part of this study which was memorable in many aspects. (Student 5)

I spend long hours surfing the internet, so I am capable of typing fast. When my instructor informed me about the study, I looked forward to

commencing it. When I typed on the keyboard, I did not think that writing was a tiring and boring process. Conversely, I realized that writing is at the heart of our lives which will have many reflections. In the same vein, I got so much pleasure while writing on the keyboard because I was familiar with typing academically. I can assure you that mobile technologies can change the quality of writing classes drastically. (Student 9)

My instructor offered the flexibility in this study to send our submissions with mobile technologies such as laptops, mobile phones and tablets. Additionally, we did not race against time for the second submission. We elaborated our ideas, checked instructor's feedback before composing the final form. Additionally, we learned from each other during peer-learning period. As far as I am concerned, it was a revolutionary technique to be implemented globally. I wish everyone employed such a handy method while teaching how to write academically. Granting freedom to use mobile devices broaden our horizons from different sources. (Student 16)

One of the most fundamental gains of this study was interaction for me. We interacted with our friends in many cases. For instance, we corrected the mistakes, brainstormed, composed the drafts, researched in cooperation. Thus, we strengthened our relationship to learn cooperatively and go one step further in writing each passing day. Speaking independently, finding the mistakes cooperatively, doing research as a team were key points to increase the success rate of the study. (Student 20)

### Descriptive Data Analysis

Independent samples t test was employed to measure whether there were a significant statistical difference once initial and final results were compared. The detailed analysis was given below:

Independent samples t test analysis was illustrated in Table 8.

**Table 8.**  
*Independent samples t test analysis*

Variables	Groups	N	Mean	SD	t	df	Sig
Pre-test	Control	30	53.50	11.230			
Pre-test	Experimental	30	53.33	12.753	.054	58	.957
Post-test	Control	30	54.50	18.305			
Post-test	Experimental	30	68.33	13.979	-3.290	58	.002

Note. P<0.05

Based on the values of pre-test in Table 5, there was no significant difference between each group because p-value was measured as .957 which was greater than 0.05. Additionally, there was not a significant difference between each group in terms of mean scores which were 53.50 in control group and 53.33 in experimental group. These figures indicated that their levels were quite similar initially. On the other hand, when the p values were analysed in terms of post-test results, it was measured as .002 which was significant. This difference was also observed in the mean score of experimental group which leaped from 53.33 to 68.3. However, the difference in control group was only 1 point once pre-test and post-test results were compared. Based on the post-test results, it can be attested that experimental group who followed a MALL enriched writing instruction outperformed. However, control group's progress was not as substantial as experimental group.

This study sought the effects of MALL enriched instruction in an Academic Writing class via exams, a questionnaire, a survey and an interview. Based on the findings, several key points were highlighted in each instrument. The exam results revealed that MALL enriched instruction increased students' writing marks and motivation substantially. This gain was in line with Kara and Yildiz's (2022) study which indicated that using mobile technologies can enhance students' all linguistic skills. Additionally, Bahari (2022) asserts that mobile technologies can increase the quality of education because students' enthusiasm and motivation can increase dramatically. Apart from exams, the questionnaire indicated essential points to consider. For instance, the majority of students reiterated that it was a productive period for students in many ways because they learned in an engaging way. This finding was consistent with Senel (2022) emphasized that digital literacy can offer learners to learn in an engaging way. The next instrument was the survey which unearthed significant advantages of MALL activities which were being interactive, modern, portable, student-centered and entertaining. This finding was common in Karakaya and Bozkurt's (2022) study which underlined distinguishing qualities of MALL activities in language learning and teaching process. The last instrument was the interview which revealed key points as well on the effects of MALL in writing. For instance, the students who received a traditional based writing instruction complained about boredom, monotonous cycle and tiring activities, whereas the students who were exposed to MALL activities to write academically expressed their

compliments with various stark examples. In addition, MALL gives teachers extra time to check on students. Instructors can spend more time with students because lecturing takes less time (Daskan & Yildiz, 2020). This finding was also supported by Kim (2022) and Yildiz (2022) who emphasized that mobile technologies could produce promising results to increase students' attitudes toward writing academically.

### Conclusion and Recommendations

This study investigated the effects of MALL initiatives on students' writing competence. Based on the findings gathered through various qualitative and quantitative instruments, it was observed that students' writing performance was enhanced dramatically. In the same vein, they were more eager to join the activities and submit their works electronically via mobile technologies. Furthermore, students' relationship with their instructors and friends strengthened substantially. In addition, interaction was the core part of the study which required the learners to cooperate, discuss and come to the sensible decision as a team. Subsequently, peer-learning activities increased students' retention rate as they corrected their friends' mistakes collaboratively. Moreover, students' overall attitudes towards learning English by mobile technologies changed positively. Based on the aforementioned advantages of MALL, it can be stated that mobile technologies can contribute to language learning and teaching process in increasing numbers for long years.

Some recommendations can be made for stakeholders of education who are keen on integrating MALL activities into writing classes. This study sought the effects of MALL on writing at a tertiary level in Iraq. Future studies can be conducted to measure the effects of MALL on different skills at different stages of education. In addition, male students were higher than female ones which can be equalized in future studies to represent genders fairly. Finally, this study lasted 12 weeks which can be prolonged in future studies because writing skills cannot be mastered within a short time. Longer periods can yield more satisfactory results.

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