Students’ reading comprehension using mall strategy through Padlet in High School students

Comprensión lectora usando estrategias MALL mediante Padlet en estudiantes de Colegio

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The objective was to determine if there is a significant difference between the reading comprehension of EFL students who use the Mobile Assisted Language Learning (MALL) strategy through "Padlet" and students who are taught with conventional teaching methods. For data collection, high school students at IES Antonio Avila took various tests, surveys and classroom observations using learning methods in line with Padlet or conventional teaching. MALL strategies through Padlet should be integrated and carried out in a series of tasks. The results would likely show that instruction using MALL through Padlet helps motivate students to comprehend what they read and improve their linguistic accuracy.

Descriptors: Reading habit; reading promotion; language of instruction. (UNESCO Thesaurus).
INTRODUCTION

Reading skills are one of four language skills in English. Reading combines an individual's ability to recognize a visual stimulus (words on a page) and its association with a particular sound and/or meaning. It's a complex concept based on previous knowledge and past experiences to understand and interpret meanings. Reading is necessary to be mastered by students as it requires comprehension to construct meaningful understandings of the world and other people. The educational system has adapted to use some technology in today's teaching and learning methods. However, mobile and online applications communication has been enhanced and made so that individuals can engage with more people other than their immediate social circle. Technological tools enable learning and extend beyond the classroom walls, given that they may increase motivation, enjoyment, and successful education in digitally entuned adolescents.

Several studies have been conducted related to the involvement of mobile technology in learning English, mainly on EFL students' reading comprehension. A survey conducted by Krashen (2020) concluded that using digital tools positively impacts teaching. Other studies have also supported the idea that students are motivated to develop some skills by using accessible online sources (Hussain, 2018). Many applications can be integrated into reading comprehension with this teaching strategy; an example would be that of Padlet. They can share their ideas and practice collaborative learning by virtual posting content (Widiana et al. 2018) characterize MALL as a wireless and personal form of networking accessible to most. It also deals with mobile devices such as PDAs, phones, and other handheld devices (Miangah & Nezarat, 2012). In a language learning context, five features that support learning scenarios are access to genuine materials, audio and video recording, internet access, texting, and enhancing learners' communicative skills (Saaleek, 2014).

This research answered the following questions: What is the difference between one group using MALL through Padlet to improve EFL Reading Comprehension and one using traditional strategies? How are the fundamentals presented in MALL related to EFL Reading Comprehension? What are the benefits and disadvantages of Padlet as
a tool that develops EFL Reading Comprehension? What perceptions do students have after using MALL strategies to improve reading comprehension? This study aims to understand how digital resources like Padlet with a system like MALL could help students develop reading comprehension skills from “Antonio Avila Maldonado” High School.

THEORETICAL FRAMEWORK

The current research project proposal stems from the fact that students thrive in different ways and environments when learning languages. This investigation proposes that working in collaborative groups can be more successful than individually. Since MALL mobile's design capabilities display shorter text reading, two different opinions of students based on teaching method can be collected (Burston, 2014). Those who received the vocabulary building with SMS have better retention when it comes to differentiation than those who learned the traditional way (Alivinia & Qaitassi, 2013).

Meaningful learning happens when learners can process and organize information by linking new information with prior knowledge in a new cognitive structure (Burstan, 2013). Padlet features an online wall "web-based where ideas are collating via virtual post from the users. This tool is incredibly beneficial to its users and provides access to them without the need to have an account (Using Padlet for Collaborative Writing among ESL Learners, March 2019). This is an essential feature since the hassle of creating accounts and emails may deter people from signing up on the platform. Users can create unlimited posts, invite others to collaborate in the discussion, and customize and set privacy settings on Padlet (Alabbad & Bin Huwamel, 2020).

Research done with Padlet within a workplace communication course has highlighted that Padlet improves the relationship between students and teachers. It also provides teachers with an alternative mode of communicating with students beyond the classroom (Fisher, 2017). The learning environment becomes more collaborative given that students can ask questions, not only to instructors but also to their classmates. The contribution made by students can spark an academic conversation among the participants in the classroom and increase motivation and self-esteem. A contribution
made by one person makes it so that other students feel like they would like to participate as well, without the fear of judgment that occurs in traditional school settings (Rashid et al. 2019).

Reading has an interactive activity that requires the participation of the writer and reader and is demonstrated through a dialog in a text. Reading is seen as communication through mental processes (Lopera, 2012). The reader actively participates and engages with the text to create meaning by manipulating strategies.

ELT materials (textbooks) have an essential role in most language classrooms. Still, with the rise of technology, there has been a lot of debate throughout the ELT academic world on the part of teaching materials when it comes to the instruction of English as a Second/Foreign Language (TESL/TEFL). There have been arguments on the potential and limitations of materials meant to "guide" students in the learning process and academic curriculum. Other subjects that have been debated are the needs and opinions of teachers who are using textbooks.

Other topics that have come out in recent years comment on a textbook's content. From the many factors that have been looked at, there have also been the design, practicality, validity, and sources of the materials included in the text. Apart from the validity of the content, a broader topic has been addressed on the role textbooks have in the classroom compared with technology and their effectiveness in representing language. Other subjects that have been discussed have been gender representation and cultural components. A suggestion to better evaluate reading skills would be the inclusion of a rubric.

LITERATURE REVIEW

General studies were also identified: this is the case of (Rahimi & Babaei, 2021), who confirmed the effectiveness of a rapid visual presentation (RSVP) technology in improving the reading speed of 72 EFL students from Teheran, Iran. For his part, (Dharmayanti, 2021) investigated the influence of MALL in improving the literacy skills of students in the international accounting program; however, this study found no significant effect of using MALL to enhance students' literacy skills overall.
Dharmayanti’s study is the only one whose results do not confirm the effectiveness of the use of MALL.

In the case of exploratory research with a qualitative approach (Read & Bárcena, 2016) developed a mobile-assisted social learning app called ANT (Audio News Instructor), from which they evaluated how it could improve linguistic skills. The study, whose scope was exploratory, observed the stages of a student's commitment to the app, so the results obtained cannot be generalized (Cholis et al. 2018), on the other hand, interviewed three online English students in Surakarta, Indonesia; they stated that MALL encouraged them to be autonomous learners, although they also reported experiencing some technical problems during the operation of the devices.

The scientific literature with a quantitative approach is extensive, although with small population samples. There is the research of (Khubyari & Narafshan, 2016), who after conducting a quasi-experimental study with 40 English students at an intermediate level, aged between 15 and 20 years, found that reading comprehension was favored thanks to the use of mobile phones; particularly, due to the comfort facilitated by the portability and accessibility of these artifacts (Helwa, 2017), after developing a mixed approach study with 30 students enrolled in the English department of an Egyptian university, showed statistically significant differences between the mean scores of those participants who had learned through regular strategies and the results seniors of those who received training through the MALL methodologies. However, because the sample of these studies is very small, no generalizations can be made from the results obtained.

In turn, two investigations were identified that evaluated the impact of the Quizizz app on reading comprehension: this is the case of (Priyanti et al. 2019), who, through a quasi-experimental study, verified the effect of Quizizz on the English study of 37 eleventh grade students from Singaraja, Indonesia; according to the results, the mean score of the experimental group was higher than that of the control group (83.08>80.77), and the p-value was 0.018 or less than 0.05. Similar results were evidenced by (Juniarta et al. 2020), with a small group of second-semester students
from the same locality; it was found that the reading comprehension score improved significantly at the end of each cycle; and that students had a generally positive perception towards the implementation of the Quizizz app-based learning strategy. Correlational studies with representative samples were also identified: Imtiaz et al. (2017) compared the incidence on reading comprehension of 122 first-year university students, of two types of language learning methods: the first, computer-assisted (CALL) and the second by MALL. The final results showed better results among the students who used the second model (Naderi & Akrami, 2018), investigated the effect of instruction through Telegram groups on the reading comprehension of 103 students, as well as the difference by gender. The results showed that the education, supported by Telegram, has a significant effect on the reading comprehension ability of intermediate level students, while it was determined that there was no significant difference between two experimental groups of men and women in terms of reading comprehension ability (Keezhatta & Omar, 2019) conducted an experimental study with 120 Saudi high school students attending 10th grade, which established that MALL materials and systems improve reading comprehension ability among English learners. There were significant differences between users and non-users of MALL in favor of the experimental group (p < 0.05). So, it can be generalized that MALL systems and applications, in general, provide a motivating learning environment for teaching reading, which has positive implications in improving students' reading skills. Finally, (Prastya, 2019) developed a quasi-experimental study with 73 students from Singaraja, Indonesia, who were divided into an experimental group (who received classes through MALL integrated with Padlet) and a control group (students who were taught using the conventional strategy). The descriptive results reveal that the mean score of the experimental group is higher than that of the control group (78.03 > 73.39), while the inferential statistical analysis revealed a significant difference in reading comprehension between both groups, favoring the experimental group.
METHODOLOGY

Participants
It has been defined that two groups of 56 students, 32 are part of the intervention group, and 24 are part of the control group. EFL high school students with an average age between 16 and 17 years old were selected to participate in the study. Participants were recruited from “Antonio Avila Maldonado” High School. One group was taught EFL with a MALL through Padlet, and another followed traditional methods. The researcher-led both groups.

Materials
Padlet was used as a learning tool. Due to extensive research, collaborative situations are positive with the advent of Web 2.0. Facebook, blogs, and other Web tools have been shown to have a favorable effect on students' language learning ability (Omar et al. 2012). Research has also suggested that through the use of various modes of ICT, learners can internalize the content and learn better (Dewitt et al. 2015).

Design and Procedure
To determine if there is a significant difference in the reading comprehension of EFL students who were taught using Mobile Assisted Language Learning (MALL) strategy through "Padlet" and students prepared using conventional teaching strategy, it has been considered that a mixed-methods design, with qualitative and quantitative methods, was used to gauge academic improvement as well as teachers' and students' perceptions. During the first stage of the study, a pretest was used (before using any of the different teaching strategies) to record a baseline of results for all the participants in the study. After applying the various techniques, a post-test recorded the data used to determine if there was any significant improvement favoring one approach over the other. Both tests were based on the goals, contents, and abilities needed to acquire in the course Syllabus. The teacher kept a journal to collect the teacher's impressions and exciting data during the course. Finally, students took a survey on students' perceptions. Ethical
issues discussed with parents and a consent form must be filled out by the legal
guardian and authorization by the institution’s principal. Students without their parent’s
approval could not participate in the study.

STATISTICAL ANALYSIS
The statistical JASP program (Gross-Sampson, 2019) compared the two groups. The
distribution was evaluated using the Test of Normality (Shapiro-Wilk), which showed
that the data is close to the normal distribution. In this way, a t-test was conducted to
prove if the two groups were significantly different. A raincloud plot was used to
illustrate the results and effect size to present the program’s impact, considering the
differences between the two groups.
The results of the observation sheet were exposed using a table summary which
grouped the advantages and disadvantages identified by the researcher. Finally, the
students’ perceptions were reported using a line diagram that showed the mean of the
3 points scale.

RESULTS
The results are organized into three sections. The first one establishes the differences
between the experimental and control group based on the Cambridge test Level A2.
The second one explains the benefits according to the observation of the class. The
third one exposes the students’ perception of the MALL strategies program.

English level differences between control and experimental group
Before the experiment, the two groups were evaluated to diagnose their general level
over 5 points. Figure 1 presents a raincloud plot that reveals the similarities between
both groups. The intervention group obtained 2.90 points (SD 1.40), and the control
group obtained 2.60 points (SD 1.46). There is not a significant difference between
these groups [t (60 df) =0.824; p=0.413]. Therefore, each group could be part of the
intervention or control. Using a coin, it was selected the intervention group randomly.
After four weeks of intervention, the initial situation regarding reading comprehension changed significantly. It can be seen in Figure 2, which shows how the intervention group has a higher position than the control group. In this case, students from the intervention group have obtained 2.53 points (SD 1.50), and the control group only obtained 1.67 points (SD 1.37) on average. There is a significant difference according to the statistical test \[ t (54 \text{ df}) =2.206; p=0.032 \]. According to Cohen's d coefficient, the differences have a medium effect size (Cohen's d = 0.596).
Note: Each circle represents each student per class, and the box (which put together 50% of the data) with their whiskers (which put together 25% above and 25% below) shows the mean inside the box.

**Figure 2.** Raincloud plot of the final test after the intervention using the Cambridge rubric test in person.
Source: Own elaboration.

Related to the question “what is the difference between one group using MALL through Padlet to improve EFL Reading Comprehension and one using traditional strategies?” it is possible to answer that the students from the intervention group have a difference of 0.86 points higher than the control group in the reading comprehension evaluation.

**Observed benefits**

Regarding the benefits, an observation sheet was used to register the advantages and disadvantages of the program. A summary of this technique is shown in Table 1. There were identified seven advantages and five disadvantages. It was fixed two weaknesses during the program that turned into benefits.
Table 1.
Raincloud plot of the final test after the intervention using the Cambridge rubric test in person.

|                         | Advantages                                                                 | Disadvantages                                                                 |
|-------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| **Discipline**          | There was a lot of collaboration from the students; nothing out of the ordinary was noticed. |                                                                                 |
| **Technological facilities** |                                                                               | They had difficulty getting into the platform at the beginning. This generated a bit of kind of stress until we managed to connect. |
| **Connection devices**  | Students who have a computer could easily carry out the activities.          | Students with cell phones had many difficulties, especially when they were not very updated. |
| **Groups**              | Everyone was able to share their ideas. The novelty motivated them to work enthusiastically. |                                                                                 |
| **Motivation**          | The novelty motivated them to work enthusiastically.                         |                                                                                 |
| **Continuity**          |                                                                               | Students may not continue to use these resources on their own.                |
| **Time**                | They found the deadlines established for the work.                          |                                                                                 |
| **Interests**           | The students indicated their interest in continuing working with this resource in the future. |                                                                                 |
| **Facility manage**     | Once they became familiar with the tool, they found it easy to work with.    | At first, it was a bit difficult to understand the activities asked of them. They got confused. |
| **Remote connectivity** |                                                                               | Some students had a bad connection, which delayed the other students' work.   |

**Source:** Own elaboration.
According to the question “What are the benefits and disadvantages of Padlet as a tool that develops EFL Reading Comprehension?” it can be answered by explaining that discipline, connection devices, groups, motivation, time, interests, and facility management are the group of benefits identified. Technological facilities, continuity of the program, and remote connectivity quality are considered the disadvantages of the program.

**Students’ perceptions**

Ten scale questions of three points toward the students’ satisfaction with the program were applied. All the answers are higher than 1.5 points. The highest item (2.06) showed that the students were satisfied with the program because it was fun and without stress. Three things follow this situation (1.94): feedback that allows improving their knowledge; reading activities that cover their needs; and exciting items. The lowest items were motivation and effective didactic sequences; however, those are over 1.5 points.

![Figure 3. Students' perceptions.](own elaboration)
Related to the research question “what perceptions do students have after using MALL strategies to improve reading comprehension?” it is positive because they feel that the program was fun and without the stress. They considered that it helped them improve their reading comprehension. However, it is essential to improve the sequence of the activities and the motivation.

**DISCUSSION**

The results of the present study coincide, in general terms, with those registered in the most recent scientific literature regarding the effectiveness of the use of MALL in learning English as a second language. An important aspect is the population sample with which this research was carried out: 56 high school students aged 16 to 17 years. Both the number of participants and their ages are close to the studies by (Khubyari & Narafshan, 2016), who worked with 40 English students between the ages of 15 and 20, (Helwa, 2017), who carried out research with 30 Egyptian students, (Priyanti et al. 2019), who implemented a quasi-experimental study with 37 Indonesian students, and (Juniarta et al. 2020) with 52 students, also Indonesian.

In this case, there is an explanation behind the interest of these studies in working with adolescents; and it is that at these ages, a predisposition and extensive experience in the use of technological applications is usually observed, which facilitates their incorporation as strategies for teaching English. Regarding the participants, the fact that their number is small means that findings and results cannot be generalized but are limited to describing what happens exclusively in an educational institution, in the present case, the Antonio Avila Maldonado High School.

In turn, the fact that the research has had the objective of evaluating the effectiveness of the use of MALL (integrated with Padlet) in the reading comprehension of a group of secondary students gives it an original character; because the bibliographic review allowed us to identify only one study close to the subject: (Prastya, 2019), and its quasi-experimental study with 73 students from Singaraja, Indonesia, who were divided into an experimental group (who received classes through of MALL integrated with Padlet) and a control group (students who were taught using the conventional strategy).
Regarding the inferential results of the present study which showed that the applied technology had a positive correlation with the general results and with the reading comprehension of the English language, it is verified that these differ only from the study by (Dharmayanti, 2021), which showed that there was no significant effect of the application of MALL in improving the literacy skills of a group of Indonesian students.

On the contrary, the present results coincide with most of the previously identified investigations. Thus, the studies by (Khubyari & Narafshan, 2016) in the English context; that of (Helwa, 2017) in the Egyptian context; those of (Priyanti et al. 2019), (Prastya, 2019), and (Juniarta et al. 2020) in Indonesian schools; and those of (Imtiaz et al. 2017), (Naderi & Akram, 2018), (Keezhhatta & Omar, 2019) in the Arab educational field, found a significant association between the application of MALL and reading comprehension. Therefore, this research is incorporated into the extensive scientific literature that has ratified this correlation and that has been analyzed in systematic reviews of the literature by authors such as (Lin et al. 2020), (Ekinci, 2020), and (Peng et al. 2021).

Finally, regarding the satisfaction of the students with the implemented program, which was evidenced in the present study; similar results were found in previous research: (Chen, 2013), for example, in his study with ten first-year English students from a Chinese university, revealed that they expressed a generally favorable attitude towards the usability, effectiveness, and satisfaction of specific applications. In a similar research, it was applied a questionnaire to 105 North American Design students, whose ages ranged from 19 to 21, which allowed them to establish that, in general, they were satisfied with the application (Segaran et al. 2014). Finally, (Wang, 2017) found that the 6 Chinese students participating in a teaching process with MALL showed great satisfaction with said instruction.

PROPOSAL
After analyzing the results obtained in this research, it is proposed the implementation of mobile apps during the learning process. The importance of using digital resources to teach students in a variety of modalities the purpose of using mall Apps is to
reinforce vocabulary, grammar and developing reading comprehension, the advantages of using mobile applications in learning English gained positive feedback from both sides teachers and learners, it allows collaborative activities and close interaction for students to increase their learning skills. For this reason, it is recommended to add the following elements:

TEACHING METHODS

Gamification: The teacher will implement some gamification tools in the learning process rather than traditional methods. It will be replaced by using Padlet and Socrative online platforms. These tools will take part in this project and can improve reading comprehension in the classroom.

Affective Filter Hypothesis: According to Krashen, the ability of literature to improve a learner's motivation is the main reason instructors continue to rely on it. Through his practical filter theory, Krashen noted that reading for pleasure should thus be championed for EFL outcomes to be improved.
ONLINE TOOLS
Today, English language educators use digital resources to teach students in different modalities. Teaching online represents a considerable change for teachers and students. It helps them to acquire the knowledge and skills that are necessary for this process, and also it helps to develop the techniques and strategies to engage students for interaction feedback and to activate the knowledge that they already have. Students can get familiar with using this technological tool in order to create a good environment and the best way to communicate and apply the new language.

Padlet: This online tool allows students to create collaborative murals to practice reading and writing skills by doing the activities. Teachers use Padlet in a variety of ways during class. Both Padlet and Socrative tools are accessible and easier to use. Moreover, it encourages students to do the activities and feel motivated while they are interacting with each other.

Socrates: It is an online platform designed to enhance student and teacher digital communications. Students can take quizzes online for remote learning and a paper-free classroom. Teachers can create quizzes with multiple choice answers, true or false responses, or one-sentence answers; it can be used to develop reading and writing skills and be graded with feedback for each student. Students can have fun by completing the activities.

MOBILE APPS
This generation of technology has invaded our life. Everyone processes smartphones using different apps like WhatsApp, Facebook, Twitter, Instagram, Telegram, etc. Nowadays, we can’t stop them from using technology, mobile phones, iPad, etc. If teachers compare the education system in the past and now, they will find a huge gap. Using these mobile apps help students develop English skills, enrich their vocabulary and learn from their mistakes.
ACTIVITIES

Crossword game: is a word game that consists of intersecting rows of boxes where you put letters into each box that spell out words, and there are clues provided to let you know what word to put in each row it appears horizontally or vertically. Learners develop their reading skills because they have to read and understand the clues to complete the crossword.

Know or: It focuses on vocabulary building and word definition. Students can get started with this game almost immediately and practice their reading, vocabulary, and spelling. Students can compete against each other.

Quiz game: It can be defined as a game or brain to test knowledge. It can contain an element of competition when students play against each other to get the highest score, which makes helps participants become more engaged in the activity given.

True/false: Reading and listening to texts with True/False activities are the easiest ways to get students involved in a reception skill. The learners can often guess whether the statements are true or false before and then read the text to read the text check.

CONCLUSIONS

While technological advances provide more accessibility to newer devices and services, poverty limits its availability. These tools can better serve students in their academic goals. However, the educational system sometimes undergoes budget cuts that limit the number of devices given out to schools. The lack of economic resources is found within the educational system; it is also present in the homes of the students who attend school. Some households are in remote areas where internet access is limited, or families lack the funds to invest in new technological devices or connections.

To manage the fundamental problem of underdeveloped literacy in Ecuador, there is a need to implement economic and educational reforms that support academic learning in and outside the classroom.

The use of mobile applications in developing reading comprehension in second language acquisition is on the rise. Students seem to enjoy using these mobile apps,
both inside and outside the educational settings, especially if the content is interactive and simulates real-life situations.

Generally, there is potential to develop research on MALL and reading comprehension, but it should be randomized and controlled, with larger populations and more extended intervention periods. The given study encourages further studies in the use of specific reading apps. Some are on the market; however, they are not intentionally developed for L2 readers. In addition, when working with a particular app, it should be considered that the research plan needs to be well thought out and strategic to be applicable in the new context and in a more general sense. Thus, the effect of acquired reading skills will prevail in the long term. However, what type of strategies of reading comprehension students develop L2 by using mobile apps still need to be answered.

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