Mobile Learning in Education: Inevitable Substitute during COVID-19 Era

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Abstract
The incorporation of mobile phones is persistent in the development of language learning, particularly in the EFL context. The present investigation aims to determine the impact of mobile-assisted language learning (MALL) applications on developing “learners” grammar proficiency. The current study employed a quantitative research method to explore MALL-assisted feedback in a WhatsApp group during the group chat. 60 Saudi male EFL learners, randomly assigned to the control and experimental group. Participants in the Experimental group practiced grammar in WhatsApp chat, whereas the same material was sent to the control group on Blackboard. The data was gathered by administering pre and post-test of grammar proficiency. Descriptive statistics and ANCOVA were used to analyze the data. The study’s findings exhibited that WhatsApp group practice and feedback positively impacted learners’ performance.

Keywords
feedback, grammar, MALL, WhatsApp

Introduction
English is used in a wide range of situations globally as a native and second language. It is the most geographically ubiquitous language in proportion to the number of nations where it is an official language (Rao, 2019). Consequently, English teachers have a responsibility to equip learners with the requisite skills to participate in English language interactions. Grammatical precision is critical for language development since it instills confidence in learners while communicating in a second/foreign language (Rao, 2019). Numerous studies (Abubakari, 2020; Antonaru, 2017; Ismatova, 2021; Lin, 2008; White, 2019) have examined grammar acquisition and development in boosting language learning. Making grammatical errors seems more likely for Saudi English learners because of the variances between Arabic and English grammatical constructions (Alasfour, 2018; Lin, 2008). There is widespread agreement among experts that feedback, among the most efficient strategies in educational settings, plays a crucial role in learners’ achievement, which is inextricably linked to the learning process by giving learners guidance and essential details (Nassaji & Kartchava, 2017). Typically, English as a foreign (EFL) teachers like to provide explicit instruction and feedback on written assignments (Salemi et al., 2012). With the introduction of technology in general, particularly smartphones, feedback patterns in EFL classes have shifted considerably, allowing teachers to employ various technology-based affordances, such as smartphone apps, to address the learners’ mistakes (Dawson et al., 2018).

The Covid-19 pandemic and the government-ordered lockdowns that occurred worldwide to contain the virus’s spread forced more than 1.2 billion students from 186 countries to continue their education from home (Hossain et al., 2021). Digital technologies provided a timely solution, making it possible for learning to continue. Technology-based innovations and the web have revolutionized people’s lives and accelerated progress in a multitude of sectors. M-learning in this aspect would
be the most suitable asset for the keep learning process live. Mobile learning, often called M-learning, is a novel approach for individuals in different world regions to access educational content via mobile devices (Mehdipour & Zerehkafi, 2013). It is feasible for learners to learn ubiquitously through a smartphone device with Internet access. Thus, mobile learning is adapted to how youth perform duties and think by utilizing developed educational technology in language learning (Cheon et al., 2012).

MALL is an approach for integrating mobile phones into the educational environment. Viberg and Grönlund (2013) state that MALL is concerned with mobile technologies in language learning. The primary goal of using mobile phones in a classroom context is to make learning more individualized and intuitive. In addition, technology-aided instruction can aid in managing time by allowing students to practice grammar outside of the class, giving teachers additional time to concentrate on other aspects of the learning (Richards & Reppen, 2016).

Blackboard (BB) is a learning platform that was extensively applied before and after the outbreak of COVID-19. BB-based education is among the most important contributions in emerging technologies. Several institutions have implemented it due to its prevalence, convenience of use, and connectivity since it offers numerous options for instructors and students to connect via virtual classes (Neuwirth et al., 2020). It promotes students to participate in online instruction such as online classes, blogs, writing tasks, and obtaining feedback from instructors and classmates (AlKhunzain & Khan, 2021). It allows instructors to upload the material, assign homework, online exams, manage activities, monitor learner performance, send alerts, provide feedback, group and individual discussions, and many other features that an instruction needs. It can be used via computers, laptops, and smartphones. Learners can benefit from the recorded lesson if they miss any online class.

There has been an increase in Saudi EFL students’ interest in using cell phones as M-Learning (Khan et al., 2018, 2021). With the increased usage of M-Learning in the language classroom in recent times, some studies have uncovered evidence of its usefulness on learners’ enthusiasm and learning engagement (Chinnery, 2006; Shahbaz & Khan, 2017), as well as on the proportion of communication and collaboration between students and teachers (Corbeil & Valdes-Corbeil, 2007; Gupta & Koo, 2010; Kukulsksa-Hulme et al., 2017). One feature of the M-Learning that has been extensively addressed in many investigations is the device’s mobility, which enables to access it anywhere and at any time they want (Ahmad et al., 2021; Christensen & Knezek, 2017; Kukulsksa-Hulme, 2018; Mehdipour & Zerehkafi, 2013; Rataj & Wålji, 2020). M-Learning is distinct from classroom instruction, as it is not confined to the classroom for education and learning engagement. Ducate and Lomicka (2013) indicated that more than 50% of EFL learners now utilize MALL to improve their language ability.

Nevertheless, it appears that Saudi EFL students have little interest in using MALL as a learning tool, most likely due to the absence of motivation offered by instructors in Saudi universities (Yadegarfar & Simin, 2016). On the other hand, Fageeh and Mekheimer (2011) and Khan et al. (2020) findings indicate that Saudi EFL Learners’ performance in grammar is poor. Feedback is an essential aspect of language learning, and this has become more significant in the situations like COVID-19, where learners do not have an opportunity to interact with the teachers. The literature lacks studies that focus on the feedback through M-learning. This assertion was also confirmed by recent research by Soria et al. (2020). There is a clear indication of the lack of the studies that examined the role of feedback in developing grammar proficiency of EFL learners. Therefore, the present attempt intends to assess the impact of using a mobile application on improving grammar performance due to the instructor’s instant feedback.

**Literature Review**

**Mobile learning**

M-learning has generally been an intriguing subject of study for scholars since the turn of the twenty-first century. One component of M-Learning that has been prominently focused in many investigations is the mobility of gadgets, which enables users to have unrestricted access (Chinnery, 2006; Christensen & Knezek, 2017). According to Papadakis and Kalogiannakis (2017), touch-screen innovation provides a dynamic experience similar to a natural learning process, consistent with interactionist theory. In a perfect scenario, smart gadgets and associated applications (apps) would enable productive and interactive learning environments. Chinnery (2006) identifies convenient interfaces, wireless broadband connectivity, integrated software, and enhanced multimedia capabilities as the most often reported advantages of MALL devices by consumers. However, he observed that the small size of gadget displays and keyboard issues with certain types of MALL gadgets are some of the disadvantages of MALL that result in dissausive for acquiring mastery in some of the language skills, for instance, writing.

Concerning prior research on learners’ perceptions of MALL, Alhadiah (2020) discovered that many students who utilized it to acquire vocabulary regarded it as highly beneficial and intriguing. Shahbaz and Khan (2017) highlighted the attractiveness of smartphone immersion for
learning idioms. Stockwell (2012) demonstrated in a similar study that because learners possess high expectations about the influence of MALL, they have a solid motivation to enhance their language ability through the M-learning approach and thus endure the issues associated with using the MALL gadget during their learning. Tsai et al. (2010) revealed in research investigation on user attitudes regarding MALL via PDAs. They found that users perceived this technique ineffective for language acquisition, despite a positive perspective toward utilizing the phones as instructional activities. Kim (2018) carried out a study to demonstrate the efficacy of MALL language applications in enhancing learners’ listening ability by using Telegram. The findings concluded that the incorporation of the Telegram app was beneficial in boosting learners’ listening abilities. Ghorbani and Ebadi (2020) examined the impact of MALL on the success of a large sample of students in Iranian medical universities in grammar learning. The findings indicated that among a significant percentage of social network users, Telegram users ranked best. 'Ta’amneh (2017) evaluated the feasibility of the social media platform WhatsApp in teaching English.

**Mobile Assisted Grammar Learning**

Several studies show that using M-Learning in ESL or EFL classes benefits students’ grammar learning. According to Gharehblagh and Nasri (2020), Johansson and Cukalevska (2021), and Khodabandeh et al. (2017), students’ grammar develops when they work cooperatively to learn. Students’ grammar develops when they work cooperatively to analyze responses to exercises. Both studies used Telegram to collaborate and complete homework. Rosita et al. (2019) further confirm the premise that MALL helps pupils learn grammar. Li and Hegelheimer (2013) investigated the impact of a grammar clinic’s smartphone Grammar learning app for language applications in an M-learning environment ubiquitously. Additionally, in light of Richards and Reppen’s (2016) assertion that students’ grammar learning beyond the classroom benefits teachers’ time management in the classroom. Li and Hegelheimer (2013) claim that using Grammar Clinic in MALL environment may have helped students learn grammar. Students in Krasulia and Saks (2020) research were equally enthusiastic about mobile learning. In conclusion, Lawrence claimed that many students were in favour of using smartphones in EFL classes. (Klimova, 2019) also discussed students’ positive impact on using smartphones in the teaching process. Their findings positively affected the writing process as observed via smartphones and on learners’ perceptions of smartphones. MALL also improved students’ pleasure with learning (Khan et al., 2019).

Research has shown that WhatsApp can benefit students in academic settings and language learning. Studies (Jasrial, 2019; Khan et al., 2021; 'Ta’amneh, 2017) demonstrated that WhatsApp could facilitate three types of interaction: student–student, student-content, and student–instructor. Additionally, WhatsApp has been highly successful at improving English language learners’ proficiency and competency and reducing their stress (Ali & Bin-Hady, 2019). Nonetheless, internet access and a lack of commitment on the participants’ side were two of the most significant obstacles linked with such social media applications. Additionally, Alishammar et al. (2017) discovered that WhatsApp contributed to the promotion of independent and collaborative learning, the retraining of instructors as guides, and the construction of educational processes. WhatsApp has facilitated the growth of informal, anytime-anywhere learning, which stringent norms must accompany. These findings corroborate (Kartal, 2019) argument that messaging service using MALL programs (including WhatsApp) can benefit writing and vocabulary development skills.

The findings above show that students generally like utilizing MALL for learning. One explanation for this outcome is that teachers have figured out a way to incorporate handheld apps into the classroom as a tool for learning rather than a distraction (Miangah & Nezarat, 2012). The literature review indicates that researchers primarily focused on vocabulary, reading, and writing aspects of language learning in an M-Learning environment. Moreover, to the best of the researcher’s knowledge, there is a dearth of literature investigating M-learning’s role in situations like Covid-19 in developing the learning process. Therefore, the purpose of the current investigation is to determine the effect of M-learning in developing learners’ grammar proficiency. The following research question governs the study:

**Are there any significant differences in learning grammar through WhatsApp and BB?**

**Methodology**

The study employed a quantitative research method to gather the data. The experimental pre-test and post-test were used to obtain quantitative data about the learners’
grades and learning progress. The study included 60 male EFL adult learners who were chosen via a non-random convenience sampling strategy. Two preformed were already divided by the administration based on their placement test. Their level of language proficiency was identical. All the participants were enrolled in the Department of Common First Year (DCFY), where they study language skills for two semesters. The participants of the study were randomly assigned to the control and experimental group. The researcher used a grammar test made by the exam committee of the university for pre and post-test of the study. The test was comprised of 30 multiple choice items. All the items of the test are related to the contents of the grammar covered in the coursebooks. The test covered most of the aspect of the grammar taught in the coursebook to check the learners' proficiency in grammar learning. Grammar test contains 20 marks in 100 marks exam. All the questions in the test are multiple-choice questions.

Procedure

After assigning learners to the control and experimental group, a pre-test was conducted to determine the learners' grammar proficiency. Due to online learning, the learners in both groups were instructed through a learning management system (LMS). For this, all the teachers have to follow BB LMS for teaching purposes. All the participants were guided and trained on how to use the interactive BB learning.

Control Group

The control group was comprised of the 30 participants who studied grammar through BB only and got the grammar practice exercise in the content section of the BB interface. The learners in the control group were asked to check the content section in in BB preface and practice accordingly. Learners have to join a discussion session of the grammar course in the BB. They received feedback in the discussion section.

Experimental Group

The participants in the experimental group were 30 EFL learners. They received grammar practice exercises in the WhatsApp group. The researcher created a WhatsApp group was created by the researcher to deliver the grammar practice exercise and give feedback to the learners. All the participants were included in the group and were informed explicitly about the use of the WhatsApp group.

Treatment continued for a period of 8 weeks. Figure 1 presents the treatment procedure of the study.

Learners in both groups were taught through videos containing the grammatical aspect, explanation of the rules, and some practice exercises. These videos are part of the teaching instruction integrated with the books. The learners in the experimental groups were provided instant feedback in the WhatsApp group, and the control group were given feedback in the discussion section. Students in the control group were allowed to use mobile phones to access to the BB application.

Data Analysis

Data collected through pre and post-test from the control and experimental group were analyzed through SPSS 22. At the onset, Reliability and normality measures of the test scores were taken.

The test was comprised of 30 multiple choices items related to grammar learning from the course book for both pre and posttest. The Kuder Richardson test was performed to determine the instrument's reliability in this investigation. The Kuder–Richardson method is the most accurate approach for determining a test’s reliability that assigns one mark for correct response and zero for incorrect response or a test that uses (yes, no) responses (Sarmah & Hazarika, 2012). If KR is more than.70, it is regarded as reliable (Nugroho et al., 2019). Table 1 illustrates the reliability of the test that was used to determine grammar proficiency.

The data were also tested for normality using the Kolmogorov-Smirnov and Shapiro-Wilk. These tests are widely administered to determine the normality of the tests. Table 2 illustrates the normality analysis of the data for the present study.

Descriptive data from the pre- and post-tests are shown in Table 3 to investigate the possible impact throughout the intervention duration. This information is used to analyze the potential impact that happened as a result of the intervention.

Pre-intervention Grammar proficiency for the control group was $M = .42$. The mean near to 1 implies improved Grammar proficiency, whereas the mean near to 0 suggests decreased Grammar competence. Pre-intervention Grammar proficiency in the control group was .42, roughly in the midpoint of 0 and 1. This indicates that learners in the control group attained .4 marks out of 1. Before the intervention, the learners’ Grammar performance was up to 41%. The standard deviation of the series of total scores was .1077, indicating a 10.77% variation. The skewness was positive but close to zero. The experimental group’s pre-intervention grammatical proficiency score was $M = .48$. The standard deviation was .078, indicating a 7.8% difference in the experimental group’s grammar proficiency before intervention.
Post-test Grammar Proficiency for the control group had a mean score of .608. After the intervention, the control group’s Grammar Proficiency series control group’s variation was $M = .68$, indicating a 60.89% dispersion. Overall learners in the control group attained .6 marks out of 1. The experimental group’s post-intervention
Grammar Proficiency score was $M = .77$, which suggests that the experimental group’s Grammar Proficiency increased to 77% after the intervention. The standard deviation ($SD$) of the series evaluating Grammar Proficiency after the intervention for the experimental group was .044, indicating a 44% dispersion. The experiment enhanced their grammatical scores on the post-test for both control and experimental groups (Tables 4 and 5).

Levene’s test denotes that there is no violation of homogeneity, $F (1,58 = 3.079, p = .085$. The results are showing that sig ($p$-Value greater than .05), So the variance of the Post test is equal across the groups at 5% level of significance. However, at 10% level of significance it is not equal across the groups.

The results are showing that $Pre$ test does not show the covariance between the post test and groups as the $p$-Value (Significance value) of pre test is greater than .05. The $F$ test $F (1.57 = .705, p = .405, \eta^2_p = .012)$. The result indicates that the performance of control group doesn’t covariate the pre-test, which shows that grammar proficiency was not improved, there is small effect ($\eta^2_p = .012$), which denotes that learners have improved their learning.

**Discussion**

The students in the control group had received the grammar activities through BB, and the experimental group learner received them through WhatsApp. Both the groups were provided feedback through BB and WhatsApp. At the end of the treatment, the post-test result revealed that MALL applications had a substantial significant influence on the treatment group post-test performance. The illustration of the data also depicted that the performance of the control group was improved. However, when the post-test results of the control and experimental group were compared, there was a substantial difference in the development of both groups. These findings, which confirmed the usefulness of MALL apps on the grammar proficiency of EFL learners, corroborated prior research findings (Alshammari et al., 2017; Johansson & Cukalevska, 2021; Kartal, 2019; Khodabandeh et al., 2017; Li & Hegelheimer, 2013; Rosita et al., 2019; Tajik, 2020).

On the other hand, post-test scores demonstrated an improvement in average scores in both groups; however,
the increase in the control group was minor, although being higher than pre-test values in general. In contrast to the control group’s post-test scores demonstrated a substantial effect of WhatsApp to promote EFL learners’ ability to use accurate English grammar. This can occur for a variety of reasons. Given that most participants in the intervention group outperformed on post-test performance than on pre-test scores, it could be inferred that the strategy used in this study was effective. The explanation for the improvement could be the participants’ enthusiasm to apply the approach for the language learning experience of its uniqueness, which encouraged the intervention group’s learners. The findings of the study are in line with Jackson (2020) study, which indicated that students were in favor of the WhatsApp application in comparison with BB and Moodle.

Compared to those in the control group, some of the post-test scores in the control group were better than those in the pre-test group. According to the study results, most were essentially constant, and a few exhibited some signs of regression. The improvement in the control group’s performance may be attributed to the fact that learners also used the BB, which might have motivated them to practice better. In this regard, the results of the study are in contradiction with (Reeves et al., 2019), where learners in the WhatsApp group outperformed the BB learners. Results also found that the performance of some learners didn’t change, and some had a negative impact on the results of the post-test. This reversal could have been triggered by the test’s stress or other psychological factors associated with Covid-19. It’s intriguing to observe that, without adequate treatment, the development of students in online learning methodologies may be unsatisfactory or even detrimental to the students’ learning outcomes.

Moreover, the slight improvement in some post-test results in the control group associated with pre-test results in the same group could be an outcome of students becoming aware of the structure of such a task and preparing for it by reading additional grammar books or in other methods. Moreover, WhatsApp proved to be an efficient tool to deliver instant access to the material in the E-Learning context. The findings corroborate Alsowayegh and Garba’s (2019) study, which showed WhatsApp is a refreshing and enjoyable tool compared with BB.

In the end, the statistically substantial positive outcome of the final t-test confirmed that using MALL approaches can be beneficial in EFL learning, which is inconsistent with the results of Goundar (2014), who indicated some MALL frameworks are not an efficient mechanism in the EFL context. One explanation for the variations in the results could be the evolving function of communications devices from an entertainment device to an instructional tool over time. Overall, the potential benefits of MALL applications on developing grammar proficiency among EFL learners in a short intervention period might result from “learners” enthusiasm for the immersion of M-learning. Moreover, the positive impact of WhatsApp may be the result of instant feedback that the instructor had provided during the practice in the group chat. The findings are in line with the study of Soria et al. (2020), who found MALL as a source of quick response for the feedback to the learners. Another pressing activity that both educators and students should implement into the education field is giving feedback via portable devices. Learners must be fully conscious of the progression and whether their achievement is following the task’s needs. The results are congruent with (Rambe & Bere, 2013), who indicated that it was convenient for the learners to communicate with the teachers. Feedback

Table 5. ANCOVA Between Control and Experimental.

| Tests of between-subjects effects | Dependent variable: posttest |
|-----------------------------------|-----------------------------|
| Source                            | Type III sum of squares     | df | Mean square | F      | Sig. | Partial eta squared |
| Corrected model                   | 79.427a                     | 2  | 39.714      | 4.099  | .022 | .126                |
| Intercept                         | 1058.066                    | 1  | 1058.066    | 109.196| .000 | .657                |
| Pretest                           | 6.827                       | 1  | 6.827       | .705   | .405 | .012                |
| Group                             | 79.339                      | 1  | 79.339      | 8.188  | .006 | .126                |
| Error                             | 552.306                     | 57 | 9.690       |        |      |                     |
| Total                             | 20652.000                   | 60 |             |        |      |                     |
| Corrected total                   | 631.733                     | 59 |             |        |      |                     |

\( a R^2 = .126 \) (Adjusted \( R^2 = .095 \)).
provision to a specific learner through WhatsApp, learners also have access to the whole group, which may also be beneficial to access it anytime. Finally, WhatsApp has proved to be a valuable tool for providing instant and informal feedback to EFL learners.

Conclusion

The present study aimed to determine the impact of the MALL application, specifically WhatsApp, on the grammatical ability of EFL learners. The findings of this study indicate that MALL applications such as WhatsApp may be beneficial for grammar instruction. The instructor’s feedback reinforces correctly applying the language structure in subsequent uses of the same approach. The findings of the studies exhibited that WhatsApp can be operative to provide instant feedback to learners, which can act as written corrective feedback. Furthermore, the results suggest that learners’ enthusiasm increases when they utilize MALL applications to learn EFL. The research findings emphasized the role of employing MALL applications as supplemental instructional tools in addition to regular classroom practices. It is also noted that mere use of technology is not successful in developing language skills. The development can occur when it is accompanied by a suitable approach and monitored by the instructors. The participants in the control group were taught BB due to the outbreak of Covid-19. The integration of mere technology could not show the significant improvement in learning grammar.

Since this investigation used a small sample size, similar studies using a larger sample size and some other chat platforms, such as Telegram, might evaluate various aspects of language skills. Moreover, the participants of the study were male. The inclusion of female learners can be operative to underpin the MALL immersion in the EFL context. Furthermore, comparing other forms of online learning can also be investigated to determine the impact of M-learning and E-Learning. Regarding Kukulska-Hulme’s (2018) suggestions, they argued that the incorporation of mobile-assisted instruction has several advantages. However, they also had reservations about the progressions and steps necessary for mobile learning instruction; the constant use of learners’ mobile devices beyond the educational settings should therefore be investigated.

Limitations

This investigation had several limitations: the small sample size of participants, all of whom were male due to availability issues. Another limitation concerned with the participants’ readiness to participate after the formal class in Saudi Arabia, which attributed to the study’s small sample size, which had a detrimental effect on the study’s generalizability. Finally, the study administered a quantitative research design; the inclusion of a mix-method design can present a more detailed finding of MALL. Moreover, future studies exploring the learners’ perceptions of online and M-learning feedback can be conducted.

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