PAPER

# Analyzing Facebook Mobile Usage: Efficacy and ESL Learners' Writing Proficiency

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**ABSTRACT**

Facebook has leveraged rapid technological and societal changes over the past decade and has emerged as the largest social networking platform. However, research on Facebook has been limited, particularly when examining its potential to improve English as a second language (ESL) writing in comparison to a control group. The study aims to explore the morphological, syntactic, and orthographical aspects of ESL writing through an experimental group [N = 30] using Facebook on mobile and a control group [N = 30] with a traditional teaching approach. The experimental and control groups undergo observation through twice-weekly, in-class-focused free writing sessions for 10 weeks. The progress of the learners' writing was tracked using pre- and post-tests to assess its impact. The analysis of variance (ANOVA) test revealed that the experimental group made more significant advancements in writing by reducing morphological, syntactic, and orthographical errors compared to the control group. These results validate previous studies that support the use of Facebook on mobile devices in ESL courses and emphasize the need for further research comparing Facebook with other writing platforms.

**KEYWORDS**

mixed-mode, writing skills, computer-mediated communication (CMC), pedagogy, digital communication

## 1 INTRODUCTION

Computer-mediated communication (CMC) and Internet-assisted communication are often seen as one-way traffic where there is little opportunity for learning. It is believed that they do not contribute to any significant changes in our lives or enhance language competence. Although CMC is commonly considered technology-assisted communication, scholars have characterized computer-assisted interactions as aiming to enhance creativity, knowledge dissemination, and cooperation between individuals [1], [2], [3], [4]. These features enable educators to integrate social media interaction into classroom teaching, even though they were not originally designed

for educational purposes. The research conducted by Alsayat [5], Noori et al. [6], Yu and Wu [7], Muftah [8], Wang and Vásquez [9], Warschauer and Grimes [10], Alam et al. [61], and Usama et al. [62] showcases the transformative potential of these technologies in language pedagogy.

Social networking sites are increasingly being seen as a viable option for learning English language writing skills due to their widespread use among the younger population. These technological platforms have become an integral part of the daily lives of young people, making them a powerful tool for facilitating language learning [11], [12], [13], [14], [15], [16]. Jin [17] and Yen and Cheng [18] have conducted recent studies that have demonstrated the potential of online interactions in fostering and enhancing English as second language (ESL) writing. There has been significant opposition to the integration of online communication in language pedagogy. Roblyer et al., [19] demonstrated a significant difference in perception between university students and faculty members regarding the use of Facebook as a tool for classroom pedagogy. Some scholars argue that Web 2.0 technologies may not be suitable for formal ESL instruction [20], [21], [22], [23], [54]. Despite the reservations, it is essential to examine the pedagogical value of SNSs, especially in the context of teaching and learning of English as a second language.

Regardless, it is evident that the findings of Wang and Vasquez [9] in 2013 suggest that the impact of digital communication websites on the pedagogical aspect of ESL learning is an area that has not been thoroughly studied, unlike the more extensively researched wikis, blogs, and other digital media [59]. The present study aims to fill a gap in the current literature by examining how the use of the Facebook application on mobile devices can improve the writing skills of ESL learners in three specific areas: (i) morphological features, such as articles and prepositions; (ii) syntactic structures, including word order and verb tenses; and (iii) orthographic conventions, such as punctuation, capitalization, and spelling.

## 2    LITERATURE REVIEW

Facebook, established in 2004 by Mark Zuckerberg and his college roommates, is a social media platform that connects individuals from all around the world. The platform enables users to create profiles, share content, connect with friends and family, and engage in communities. With a user base numbering in the billions, Facebook has become a central platform for social interaction, information sharing, and online communication [54]. It has undergone advancements such as the addition of Facebook Messenger, Marketplace, and Groups, transforming it into a tool for both business endeavors.

It is noted that students, even at higher levels in ESL classrooms, often make errors in ESL writing at the morphological, syntactical, and orthographical levels when it comes to producing productive skills. The need of the hour is to address the issue and provide real-life solutions that minimize writing skill errors. Several studies have suggested that SNSs can enhance the process of teaching ESL, especially by promoting meaningful communication and interaction among students. SNSs offer a platform for social interaction, enabling ESL learners to engage in various social functions [24].

In a similar vein, Macbride [25] suggests that SNSs enable learners to engage in authentic social and communicative behavior. The potential impact of SNSs on promoting communication could influence the extent of learner collaboration. Toetenel [26] conducted a recent study on the impact of *Ning*, a social networking site, on the advancement of ESL learning. The results showed that the platform enhanced group cohesion and peer interaction, resulting in increased learner collaboration.

While students generally have a positive attitude towards SNSs, empirical research shows that these platforms also have specific drawbacks. In the case study conducted by Chen [27], the contrasting viewpoints of students were exemplified by the participants involved. One of the learners recognized that Facebook provided an English-supported platform and showed active engagement with language skills content. On the other hand, the other person felt excluded and uneasy when communicating in English on Facebook. Wang and Kim [28] conducted a case study on Facebook involving four ESL Chinese learners, which illustrates the varying attitudes that students can have toward SNSs. Although the participants agreed that Facebook could be a valuable resource for ESL learning, as pointed out by [29], they also pinpointed several potential disadvantages. These included the likelihood of the platform acting as a source of distraction and a decrease in user engagement towards the end of the study. These instances illustrate that while some learners may be enthusiastic about integrating SNSs within the ESL classroom, others may have reservations and exhibit caution regarding their implementation in an academic context [60].

Several studies on SNSs in ESL education have focused on harnessing their potential to improve authentic communication and promote peer cooperation [30], [31], [26], [24]. Furthermore, several studies have explored students' attitudes toward using SNSs to enhance their language skills [32], [27], [29], [28]. A significantly smaller number of research studies have focused on the improvements in language skills that students can achieve by using these websites. In 2011, [33] investigated the potential impact that both Facebook and blended learning could have on the productive skills and competencies of foreign language learners. His research findings indicated that integrating Facebook into blended learning methods effectively facilitated the improvement of English writing among students, especially those at lower proficiency levels. In another study, the findings of Yen, Hou, and Chang [18] suggest that the use of Facebook and Skype is ineffective in enhancing the speaking and writing proficiency of individuals. The research yielded favorable outcomes; however, the absence of a control group makes it inconclusive whether an alternative activity could have produced comparable advances in ESL skills. According to the author, Wang & Vasquez [34] seem to be among the few studies that have utilized a similar approach, using digital platforms such as Facebook, to investigate students' writing abilities. In their research involving 18 Chinese students, it was observed that the group using Facebook as a resource outperformed the other group in writing tasks. Conversely, there was no noticeable difference in writing skills between both groups during the similar activity.

Social networking sites such as Facebook have been found to facilitate communication and cooperation among individuals aiming to enhance their language skills [26] and [24]. Furthermore, it is commonly believed among scholars that learners have the potential to improve their proficiency in English as a foreign language [27], [29], [33], [28], and [35]. Wang and Vasquez [34] have emphasized the need for more empirical research to explore the effectiveness of social media in improving various aspects of language learning. They specifically recommended using research designs that incorporate a comparison or control group. This study aims to enhance the writing skills of Indian graduate-level students by measuring the effectiveness of incorporating Facebook on mobile devices with traditional writing tasks. This will help fill the gap in the current research area. The study aimed to investigate whether there are significant differences in morphological, syntactic, and orthographic errors between the participants who used Facebook on mobile and the control group who were taught using traditional methods.

The significance of the present study lies in the rarity of research on the use of Facebook on mobile devices or the incorporation of SNS in ESL classroom teaching.

Furthermore, the morphological, syntactic, and orthographical errors in the writing of ESL learners have not been thoroughly investigated to address the challenges related to productive language skills.

## 3 METHODOLOGY

### 3.1 Research design

The present study employs an experimental design to investigate the writing of learners, specifically to determine if there were significant differences in morphological, syntactic, and orthographic aspects between the treatment group that used the Facebook application on mobile and the group that followed the traditional teaching approach. The research involved administering writing tasks and evaluating them at the beginning and end to assess their significance and the skills acquired by learners.

### 3.2 Participant

This research utilized convenience sampling, and 60 first-year ESL students from an Indian university provided written informed consent to participate. All of them are studying English in the undergraduate course titled "Functional English," or "Compulsory English." The instructors were assigned for a ten-week period, during which three 90-minute sessions were held every week. Two classes, each comprising 30 participants, were selected for the study on writing skills, with one class designated as the treatment group. The remaining 30 respondents did not receive any treatment and were taught deductively using the traditional method in the classroom.

### 3.3 Treatment

The experimental group underwent the treatment, which involved completing two in-class writing tasks over a period of 10 weeks, resulting in a total of 20 free writings exercises. As demonstrated by [36], [37], [38], the production of language output plays a significant role in learning English as a second language. The efficacy of free writing in enhancing the writing abilities of ESL learners was highlighted by Hwang [39], leading to its integration into the curriculum. Instead of using the traditional method of free writing, which involves unrestricted, self-directed writing [40] employed a more targeted approach known as focused free writing (FF) as a technique for the intervention. This decision was made to guide and support students in starting the writing process, a challenge that many learners face [39]. The experimental group exclusively used mobile devices to create their written work on the Facebook group page assigned for their class.

Conversely, the control group was given traditional instructions and used blank sheets of paper to complete their writing tasks. During the FF, students were not allowed to use writing aids, such as dictionaries and textbooks. Each teacher undertook the task of selecting writing topics, focusing on the themes addressed in their specific classes. The treatment group was instructed to engage in substantive interaction by responding to a minimum of two posts made by their fellow students on

a Facebook page, as it is considered a fundamental element of ESL learning [41]. In contrast, the other group was not required to undertake any additional tasks related to the study beyond the classroom setting.

The assessment of the students' free writing exercise was not based on any grading or scoring system. However, the provision of corrective feedback by peers was considered important to ensure that respondents received similar treatment and feedback [42]. Ample time was given to both groups to review their mistakes during the class and make corrections before starting the next free writing task. The control group was instructed to use traditional methods to learn ESL grammar, while the experimental group used blank sheets of paper for their free writing task at the beginning and end of the treatment. No corrective feedback was provided to the control group.

## 3.4    Instruments

The methodology of the present study involves conducting an experiment in which students are engaged in writing tasks using two independent variables: the traditional method of pedagogy and the use of Facebook as an aid for writing tasks. The experiment lasted for 10 weeks, and two writing assignments were conducted to assess interference. The process of having students write their assignments was the same for both groups. The respondents were given 10 minutes to complete their tasks, and the teacher did not allow the students to use any kind of aid in the classroom during the experiment. The assigned topics were dynamic and drawn from real-life contexts to maintain the practicality of the experiment. The uniqueness and rationality of the assessment exemplify its aims, and they are valid for numerous reasons. The evaluation emphasizes the fundamental skills of ESL writing that every student must master in order to write accurately and effectively [34]. The topics provided were drawn from real-life situations, challenging students to utilize their ideas and imagination. In this way, the researcher is also aiming to develop cognitive skills through the tasks. The tasks were designed in a manner that allows them to be evaluated through pre-test and post-test results. Therefore, the difference between the experimental group and the control group can be easily identified, as can the factors that significantly contribute to the two different modes of instruction.

## 3.5    Variables

The present study has utilized Facebook as a tool to assist respondents with writing tasks, while the other group used the deductive mode of teaching through traditional methods. These are considered two independent variables in the current study. The errors are assessed and categorized into syntax, morphology, and orthography in the two prescribed assignments. The only factor that can influence the study is the varying facilitator effect and their method of instruction. Furthermore, it is evident that the instructors were different for each section chosen for the study.

## 3.6    Data collection

The data collection procedure for the present study was straightforward, as it involved evaluating two writing tasks assigned to students from different sections.

The facilitator assigned to each section studying English at the undergraduate level was different. The respondents completed the task well within the given time frame. The first group completed the task using traditional methods, while the other group used Facebook as a tool with the assistance of their mobile phones. The experimental group was divided into two separate Facebook groups based on their assigned group, and they were given sufficient time to become familiar with the task at least seven days before the initial test, i.e., the pre-test.

The significance of this cannot be overstated, as learner training plays a crucial role in determining the level of success achieved in the field of computer-assisted language learning. This activity is considered important because getting used to CALL is a determining factor for success and achieving maximum learning outcomes in an ESL context.

## 3.7    Data analysis

The study utilized the Statistical Package for the Social Sciences (SPSS) version 22 to analyze the collected data. The analysis involved a repeated measures ANOVA (analysis of variance) test comparing pretest and posttest scores for both the experimental and control groups.

## 4    RESULTS OF THE STUDY

A statistical analysis was conducted using a two-way ANOVA to examine the frequency of errors in writing. The study covered three categories of errors: morphological, syntactic, and orthographical, and two groups of subjects: control and experimental. The investigation conducted two assessments, one before the test and one after the test. The results clearly show that the impact of the different error categories was significant: $F(1, 29) = 7.592$, $P = .002$, $\eta^2 p = .352$. This indicates that the average score for morphological errors was higher than that for syntactic and orthographical errors (see Figure 1).
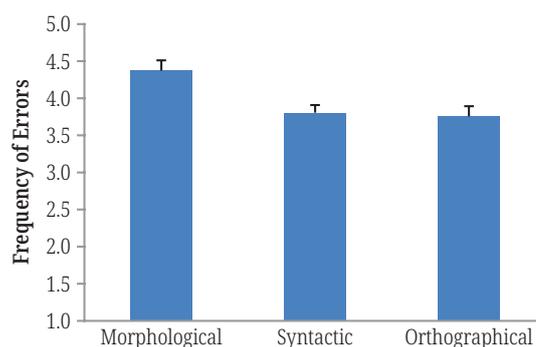


**Fig. 1.** Errors committed by the experimental and control groups

The analysis of the data revealed a significant main effect of the categories, as indicated by the $F(1, 29) = 32.363$, $P = .002$, $\eta^2 p = .541$. This result indicates that the average number of errors was significantly higher in the other group compared to the treatment group. Following the intervention, the experimental group experienced a reduction in morphological, syntactic, and orthographic errors in the context of learning English (Figure 2).
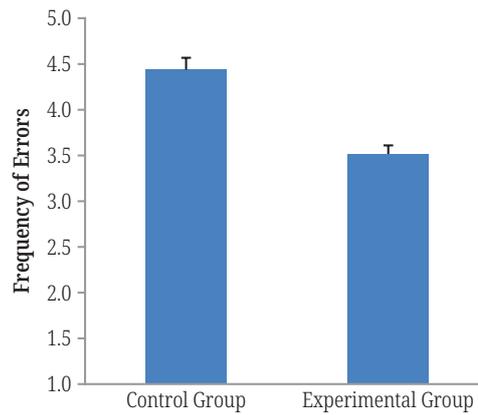
**Fig. 2.** Frequency of errors committed by the experimental and control groups

The research conducted revealed a significant impact of assessments with an F value of (1, 29) = 17.131, resulting in a statistically significant P value of .004. Furthermore, the effect size of $\eta^2 p$ = .732 indicates a significant impact of tests on learner performance. The findings of the investigation are outlined in Figure 3, which shows that the students made more errors during the initial assessment than in the post-assessment.
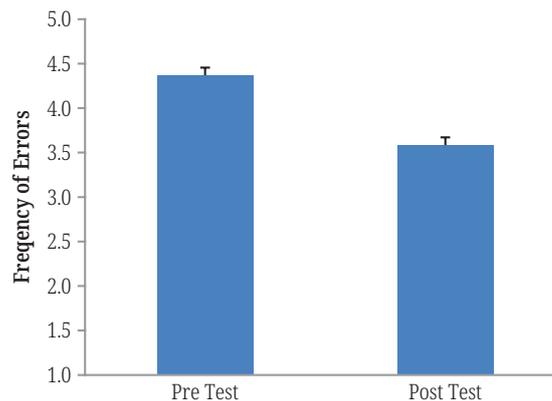


**Fig. 3.** Frequency of errors between pre- and post-tests

Furthermore, the present research has conducted an investigation that revealed a correlation among different types of errors, specifically morphological, syntactic, and orthographic errors, and the two groups of students, control and experimental. The statistical analysis has revealed that this interaction is statistically significant, with an F-value of 3.634 (P = .039) and an effect size $\eta^2 p$ = .204. The learners in the experimental group showed significant results by committing fewer errors compared to their counterparts in the control group. The frequency of morphological, orthographic, and syntactic errors was higher in the control group learners compared to the learners in the experimental group (see Figure 4) below.

Moreover, the investigation revealed significant findings regarding the interaction of various types of errors, including morphological, syntactic, and orthographical errors, and examinations conducted before and after the intervention. The results of the statistical assessment showed a significant F value of (1, 29) = 6.849 with a P-value of .031, and $\eta^2 p$ value of .301. The mean number of errors on the pre-test was higher compared to that of the post-test (Figure 5) below. The findings

revealed that the intervention delivered through Facebook on mobile effectively enhanced students' writing skills and minimized errors.
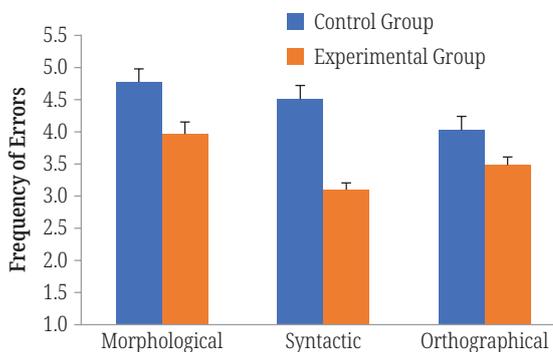


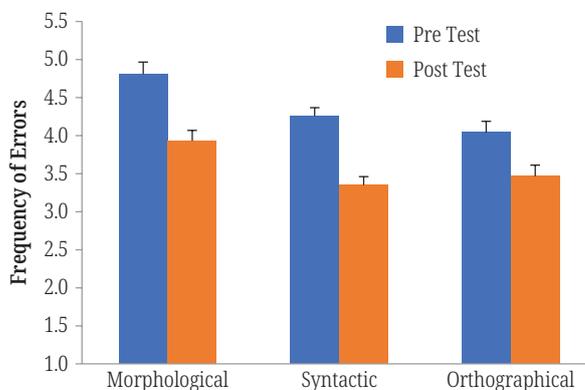**Fig. 4.** Frequency of different category of errors



**Fig. 5.** Category of errors

Furthermore, the research study revealed a significant interaction between the control and experimental groups and the pre and post-tests. This interaction was evident through the F-value of 224.347 (with 1, 29 degrees of freedom), resulting in a P-value of .001 and n²$p$ of .992. The results suggest that the exploratory mediation had a positive impact on performance, as the experimental group made fewer errors in the post-test than in the pre-test (Figure 6). The control group (Figure 6) did not show any significant differences between the pre- and post-test results.
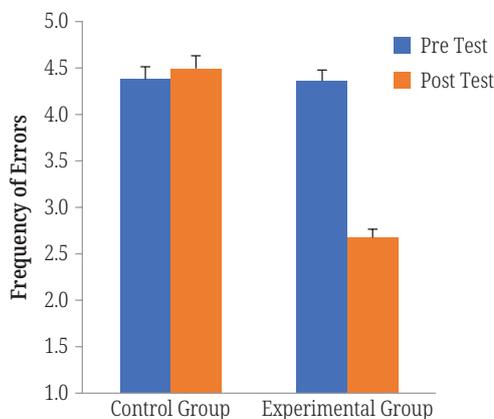


**Fig. 6.** Contrast of errors between pre and post-test

## 5 DISCUSSIONS

The study conducted a two-way ANOVA analysis of written errors, examining three categories: morphological, syntactic, and orthographical. The analysis also considered two groups: control and experimental, and two tests: pre and post. The research findings revealed that morphological errors were more widespread than orthographical and syntactic errors. The experimental group showed a lower error frequency compared to the control group. Students, on the other hand, showed improvement by making fewer errors in the follow-up examination compared to the initial evaluation. The findings of the current study indicate that morphological errors are more prevalent and that the treatment group outperformed the other group in writing tasks. The interaction effects indicated that the control group showed higher mean errors in all error types, which were generally more pronounced in the pre-test. Mobile Facebook usage effectively reduces writing errors, particularly morphological ones, and enhances language learning and writing proficiency across linguistic dimensions. This finding is consistent with the results obtained from studies of learners on SNSs [7], [43], [44], [45], [46], [47]. Additionally, [29] supports the findings and states that Facebook on mobile has the potential to enhance and enrich the learning of the English language for undergraduate students in Malaysia. These findings suggest that language instructors have incorporated the Facebook application on mobile devices as a teaching tool to facilitate meaningful learning experiences. Furthermore, research has shown that Facebook has positive effects on English writing skills and learning efforts, benefiting, not only English teachers but also individual learners and teachers in other disciplines [48]. A study on Thai English teachers [49] concluded that the Facebook mobile application is a useful method and a recommended platform for learning English writing.

Furthermore, the instructor or facilitator can create mechanisms or activities that align with the idea of integrating Facebook to develop or enhance writing skills in an ESL context. In this regard, the results of the studies [52], [53], [55], [57], [58] are in line with the objective of improving language skills. These studies demonstrated how morphological-based activities can be used to enhance language [55], [56], [57], [58], [59], [60], [61], [62], [63]. The integration of SNS in classroom pedagogy can serve as a catalyst for addressing writing errors effectively, provided that it is used in a controlled manner by the instructors [64]. The present study offers a roadmap for educators and teachers in ESL classrooms to prepare lesson plans that are tailored to their specific classroom environments. The findings of the study may be applicable to senior secondary schools in order to enhance writing skills further.

## 6 CONCLUSION

The present study aimed to examine whether there were significant differences in the progress observed in the ESL writing area, including morphological, syntactic, and orthographic elements, between the control group that used traditional teaching methods and the experimental group that used Facebook. The results suggest that Facebook could be a more effective method for enhancing writing abilities compared to traditional teaching techniques. This is supported, as indicated by the significant progress observed in all subsequent evaluations conducted after the initial examination, which was primarily demonstrated by the experimental group in contrast to the control group. The mentioned results have significant and

noteworthy implications, as they not only indicate but also emphasize the idea that Facebook, the widely used social media platform, could potentially have a greater impact on improving individuals' writing skills compared to the traditional teaching methods that have been extensively used. While some researchers argue that providing corrective feedback is not an effective approach to teaching ESL grammar, the results indicate that the writing abilities of the participants were not negatively impacted [50], [51]. Therefore, the responsibility of integrating SNSs into the classroom in a pedagogically appropriate manner falls on language teachers, who must consider their students' needs, interests, abilities, and resources.

## 7    LIMITATIONS AND FUTURE RECOMMENDATIONS

The study was conducted on a small sample of 60 students due to limited available funds. It is difficult to conduct a large survey without any funding or support from relevant higher education authorities. The present study recommends conducting a large-scale survey to inform policy-making and the implementation of techniques and strategies in classroom teaching. Government bodies need to step forward to support researchers with sufficient time, funding, and backing from higher education institutions. This research reveals several limitations, including the small number of examples and the fact that the lessons were taught by different educators. Future studies should include larger sample sizes and take into account external factors that may influence the results. Further study is needed to assess the impact of social media platforms on enhancing ESL writing skills, including the comparison of various SNSs and the integration of comparison groups.

## 8    ACKNOWLEDGEMENT

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