The effects of blended learning on university students' reading comprehension

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Article Info

Abstract

There is no one-size-fits-all method of teaching and learning, as blended learning instruction may demonstrate. The aim of this research was to examine the effects of blended learning (BL) on university students' reading comprehension. The study involved 45 first-year university students, with 23 in the experimental group and 22 in the control group, utilizing a quasi-experimental design with a quantitative approach. Data were gathered through pre-posttest reading comprehension exams adapted from the TOEFL (2023). Following the pretest, the experimental group received blended learning instruction via Moodle, engaging in 16 weeks of intervention over three hours per week. Reading passages and activities were adapted from Communicative English Skills I materials and integrated into the Moodle platform with e-learning elements. Data analysis employed mean calculations, independent samples t-tests, paired samples t-tests, and effect size measures. The pretest revealed no statistically significant differences in overall reading comprehension between the two groups (t =.797, p =.430). However, in the post-test, the experimental group achieved an average mean score of 87.2, whereas the control group averaged 77.6. Significant differences emerged between the groups (t = 3.904, p =.000). The study demonstrated that the experimental group showed statistically significant differences in reading comprehension across all categories compared to the control group. Future research could explore blended learning's influence on other English language skills and its effects across various grade levels, providing valuable insights for English language educators and curriculum developers seeking to integrate blended learning approaches into their programs.

INTRODUCTION

The demand for proficient English communication skills has surged across various sectors like academia, business, diplomacy, and trade, making English a global Lingua Franca (Kaewkunha, 2021; Lo et al., 2013). This heightened demand underscores the importance of quality English language education. Learners are increasingly motivated to learn English due to its necessity for professional success, especially in industries where effective communication is crucial (Clement and Murugavel, 2018; Richards, 2006). Consequently, English has evolved into an International and Global Language, essential for navigating global interactions and collaborations (Kumar, 2023; Crystal, 2012).

In Ethiopia, English language proficiency is particularly important in higher education, where English is extensively used for academic purposes such as lectures, assignments, presentations, and research publications (Ethiopian Ministry of Education (EMoE), 2009; Tirussew et al., 2018). Although English is a language of instruction, many students in Ethiopia struggle with proficiency, hindering their academic progress (Gebremedhin,1993; McNab,1989).This deficiency leads to rote learning and a lack of critical engagement, negatively affecting the overall teaching-learning process (Stoddart,1986).

According to Dima (2018) reading comprehension is a cornerstone skill in higher education, essential for success across academic disciplines. Since much of the learning material is in English, students' ability to comprehend English texts significantly impacts their academic achievement (Abebe, 2012). Proficient reading comprehension enables students to acquire knowledge independently and engage effectively with academic resources (Getachew, 1996). Hence, students must develop strong reading comprehension skills to excel academically (Girma, 2020).

However, poor reading comprehension skills can impede academic and personal success, as reading is fundamental for acquiring knowledge and succeeding in education, and to maximize academic potential, students must cultivate proficient reading comprehension abilities alongside other language skills(Graham & Bellert, 2005). Consequently, reading comprehension proficiency is indispensable for students in order to achieve academic excellence and personal fulfillment (Wong, 2011).

However, the challenges faced by instructors regarding students' reading comprehension proficiency indicate that many students struggle with analytical reading, distinguishing between important and unimportant ideas, and adapting their reading to different types of materials (Hall & Barnes, 2017). Research studies in Ethiopia (the home country of the researcher) also confirm university students' poor reading comprehension skills, attributing this to deficiencies in English language teaching and learning (Gebremedhin, 1993). Besides, traditional teaching methods and inadequate teaching materials further exacerbate the problem (Dubale, 1999; Seid, 2012).

 Literature on reading comprehension has shown that various factors contribute to students' difficulty comprehending written texts effectively. For example, educational elements such as teaching methodologies and instructional duration, as well as non-educational factors like home environment and prior knowledge, influence students' reading comprehension abilities (Roomy & Alhawsawi, 2019). However, innovative instructional approaches leveraging technology have emerged to address these challenges, particularly concerning teaching methods for reading comprehension. Among these technology-driven methods is blended learning.

According to Bolandıfar (2017), blended learning (BL), combining traditional classroom instruction with computer-led learning, emerges as a potential solution. It is also known as hybrid learning, which is a contemporary approach in higher education that combines traditional face-to-face instruction with online learning. This method, widely regarded as a key competency of the 21st century, integrates the benefits of in-person interactions with the flexibility of online studies (Owston & York, 2018). Students can enhance critical thinking and problem-solving skills while accommodating diverse learning styles by actively participating in discussions, collaborating with peers, and accessing materials at their own pace (Oh & Park, 2009; Owston & York, 2018).

The flexibility of blended learning allows students to manage their time effectively and access course materials from anywhere, benefiting those with additional commitments such as part-time jobs or family responsibilities (Gordon, 2014). This adaptability empowers students to become independent and engaged learners, enhancing their overall learning experience. Additionally, the use of technology in teaching and learning is aligned with the preferences of modern students, who are skilled at utilizing technology in various aspects of their lives (George-Walker & Keeffe, 2010).

Blended learning, incorporating both traditional face-to-face instruction and online educational tools, has transformed the landscape of reading comprehension instruction in higher

education, profoundly impacting students' intelligence and comprehension skills (Masduqi, 2016). This innovative approach offers a more engaging and effective learning experience, leading to improved reading comprehension abilities (Alnoori & Obaid, 2017).

One significant effect of blended learning on reading comprehension is the accessibility of a variety of digital resources, allowing students to explore customized materials tailored to their reading levels and interests (Kheirzadeh & Birgani, 2018). This exposure to diverse writing styles and genres enhances students' comprehension skills.

Furthermore, blended learning fosters a participatory and collaborative learning environment, promoting higher levels of engagement among students, instructors, and course content (Stefan, 2016). Through group projects, video conferences, and online discussion boards, students interact deeply with the reading content, exchange ideas, and clarify their interpretations, leading to improved comprehension abilities (Driscoll, 2002).

Blended learning also offers ample opportunities for continuous practice and reinforcement, with online platforms providing interactive exercises for active engagement with the material (Garrison & Kanuka, 2004). This constant practice and feedback contribute to a deeper understanding and retention of the reading material.

International studies have further validated the effectiveness of blended learning in improving reading comprehension skills among students. For instance, researches by Kheirzadeh & Birgani (2018) and Kim (2014) demonstrated significant improvements in reading comprehension performance through blended learning interventions. Similarly, studies by Alnoori & Obaid (2017), Ghazizadeh & Fatemipour (2017), and Yudhana (2021) showed positive outcomes in reading proficiency with blended learning approaches.

Even though blended learning is gaining popularity globally, there is a dearth of research in Ethiopia regarding its impact on English language teaching and learning, specifically in enhancing university students' reading comprehension skills. (Dagnaw & Tsigie, 2019; Geta & Olango, 2016). To the best of the researcher's knowledge, there have been no studies conducted on how blended learning influences students' reading comprehension in this particular context. To address this gap, this study aimed to investigate the effects of BL-based reading comprehension on University students' reading performance. Thus, the purpose of this study was to examine if BL leads to a statistically significant improvement in students' reading comprehension compared to traditional instruction.

METHODS

This research employed a quasi-experimental design involving both pre-test and post-test analysis. For this purpose, Addis Ababa University (AAU) was chosen to utilize a convenience sampling technique for its institutional readiness, internet infrastructure, the availability of the LMS/ Moodle software, and willingness to assist the research implementation across the semester. This method is used since it makes the research process easy for the researcher to choose subjects based on how accessible they are (Kumar, 2011). Thus, the researcher is a student and part-time teacher at the institution, and he is well acquainted with the setting, the faculty members, and the management. Because of his considerable familiarity, it seemed possible to gather timely and pertinent information without unnecessary bureaucracy. Therefore, Addis Ababa University was chosen because of its better internet infrastructure, considerable familiarity, and online learning platform (Moodle), which was an existing online learning platform at AAU and served a vital function in providing training to the experimental group.

Following the selection of the university, students who were assigned to the social science freshman program were chosen using a purposive sampling technique, and two intact groups from the college were taken into consideration. This was due to the fact that most social science courses are theoretical in nature and necessitate a high level of reading comprehension for students to comprehend and successfully complete their studies. Additionally, to reduce extraneous variables that can arise as a result of college variances, two groups of the same college was chosen.

In the academic year of 2023/2024, the university had a total of 14 colleges and institutions. From these colleges and institutions, first year students assigned to the College of Business and Economics for the course Communicative English Skills I were samples of the study. In the college, 530 students were assigned as freshman students, and two intact sections (45 students) were chosen through purposive sampling technique. In addition, a simple random sampling procedure was employed to allocate the two groups into the experimental and control groups. Moreover, to mitigate

instructor bias, both groups were instructed by the same instructor chosen through convenience sampling.

The following procedures were used in order to accomplish the objective of this study. The first step was to write letters of cooperation from the graduate program coordinator at the Department of Foreign Languages and Literature to the chosen college and ICT director to request uploading access for preparing the teaching material with the Moodle platform. The next step was to look for a volunteer instructor to carry out the intervention. After that, with the assistance of the freshman program coordinator and the registrar from the selected college, a list of first-year students assigned in the selected college was obtained. Once the researcher got access to freshman students, two intact sections were selected through the purposive sampling method. In addition, they were asked whether they were willing to volunteer to participate in the study after getting a briefing about the objective of the study before they took the pretest.

This study used the TOEFL iBT (2023) test, and before administering the pre-posttests, a permission agreement was made with ETS (English Testing Service). Even though the test is globally acceptable, the thesis advisor and the researcher's experienced colleagues were asked to comment on it concerning content validity, face validity, and clarity of the items.

The reading comprehension of the two groups' pretest scores were compared using SPSS version 26 statistical analysis. The main purpose of administering the pre-test was to establish a baseline level of the study participants' reading comprehension and to check whether there were no significant differences between the experimental and control groups before conducting the actual experiment. Consequently, based on the pretest results, the independent sample t-tests verified that there was no significant difference between the two groups (t =.797, p =.430). Then, the two intact sections were randomly assigned to the experimental and comparison groups for the intervention. Besides, both the instructor and participants read the information sheet and signed the consent forms to confirm their willingness to take part in the study after being informed of its objectives.

Participants in the experimental group received training from the researcher prior to commencing the study. This training focused on navigating and utilizing the software (LMS/Moodle) within the blended learning environment. The researcher utilized the AAU e-learning guide manual for teachers and students (2020) with permission from the "Center for Higher Education Research and Training" directorate office of the university. The ICT director at AAU assisted experimental group participants in creating a username and password, enabling them to access Moodle's online resources and activities, whether on or off campus.

Following 16 weeks of intervention, a posttest was given for both groups, and a statistically significant disparity between the treatment and comparison groups, as well as within the treatment group, was investigated by comparing the pre- and post-test results. The participants' pre- and post-test answers were corrected using the provided answer key. Moreover, the reading comprehension questions were divided into five categories and each participant's performance was analyzed using these five criteria (i.e., main idea, factual information, vocabulary, inferences, and references).

This quasi-experimental study utilized quantitative data for analysis. After completing the experiment, a normality test was conducted to determine whether parametric or non-parametric tests should be used. Specifically, Shapiro-Wilk test of normality was calculated, and the results for the pre-test (p = 0.38) and post-test (p = 0.55) in the control group showed that the data were normally distributed, as both p-values exceeded the threshold of 0.05. Therefore, parametric tests were deemed appropriate for analysis. Moreover, a Shapiro-Wilk test was conducted on the pre-test and post-test results of the experimental group. With p-values exceeding 0.05 (p = 0.85 for the pre-test and p = 0.28 for the post-test), both sets of data were found to follow a normal distribution. Therefore, parametric tests were used for analysis.

Therefore, the pre-posttest results collected from the experimental and control groups were analyzed using T-tests. In addition, mean scores and standard deviations for each dependent variable on the pre- and post-tests for each participant were computed using SPSS software. Besides, to determine whether there was a statistically significant distinction between the experimental and comparison groups with regard to their reading comprehension components, an independent-samples t-test was performed. For this purpose, the following alternative hypothesis (Ha) and null hypothesis (Ho) were formulated:

Ha: Students who were taught using blended learning (BL) performed better on reading comprehension tests compared to those who were taught using conventional methods.

Ho: There is no difference in reading comprehension performance between students who were taught using blended learning (BL) and those who were taught using conventional methods.

Moreover, a paired-samples t-test was performed to determine whether there was a significant statistical difference between the pre- and post-test mean scores of the students in the experimental group with respect to their reading comprehension. Prior to data analysis, the alpha threshold of significance $p<.05$ (95% confidence) was established, and it was adhered to throughout the entire study.

In this research, since the reading comprehension test scores were a continuous variable, it is viable to administer T-tests. However, the magnitude of the impact is not disclosed by the T-tests; they merely indicate whether there is a substantial difference (if any). The effect size was therefore computed. Cohen's d is the effect size metric, and it was used in conjunction with the t-test.

In general, descriptive statistics such as the mean and standard deviation and inferential statistics such as the T-value, degree of freedom, level of significance, and effect size were used to determine whether there was a statistically significant difference between the treatment and comparison groups.

The validity and reliability of the tests and the online training material were examined prior to data collection. Even though pre-posttests were taken from standardized TOEFL test, four experienced reviewers in the field checked the validity of the pre- and posttest reading passages and questions. Moreover, the training instructional material was reviewed to ensure that it meets the requirements for e-learning material preparation..

FINDINGS AND DISCUSSION
The effects of BL-based reading comprehension on students' reading performance
This section focuses on the main research objective: To determine if there is a statistically significant difference in mean scores of reading comprehension skills between students taught using blended learning and those taught through conventional face-to-face methods.

To respond to the above research objective, both control group students who did not receive blended learning and experimental group students who took the blended learning approach took the TOEFL test before and after the 16 weeks intervention. Then, the comprehension questions from 3 reading passages were classified into five rubrics (main idea, factual information, vocabulary, inferences, and references). Finally, both groups' descriptive statistics and independent sample t-tests were computed on SPSS version 26. The results of the pre-test are presented below.

Table 1: Results of the descriptive statistics and independent sample t-tests of both groups (pretest)

Components of Reading Comp.	Group	N	Mean	St. d	T-value	Sig-value	Sig. level
Main Idea	Experimental	23	3.043	.705	1.006	.320	Not sig.
	Control	22	2.818	.795			
Factual Information	Experimental	23	7.826	1.072	.971	.337	Not sig.
	Control	22	7.454	1.471			
Vocabulary	Experimental	23	7.434	1.532	.699	.489	Not sig.
	Control	22	7.136	1.320			
Inference	Experimental	23	6.565	1.829	.522	.605	Not sig.
	Control	22	6.272	1.931			
Reference	Experimental	23	2.478	.510	-1.056	.297	Not sig.
	Control	22	2.636	.492			
Overall reading comprehension achievement	Experimental	23	78.132	10.215	.797	.430	Not sig.
	Control	22	75.450	12.300			

As can be seen from the above table, the pretest scores in terms of all components (main idea: t= 1.006, p= .320; factual information: t = .971, p =.337; vocabulary: t =.699, p =.489; inference: t = .522, p =.605; reference: t =-1.056, p= .297) showed no statistically significant changes at the $p<.05$ level.

Thus, based on the overall reading comprehension pretest score, the experimental group (N = 23) had an average mean of 78.132, while the control group (N = 22) had an average mean of 75.450. A comparison of the control and experimental groups revealed that the treatment group was marginally superior. However, the independent sample t-test results (t = .797, p =.430) showed that there were no statistically significant differences in the control and experimental groups' overall reading comprehension performance on the pretest score at the p<0.05 threshold.

Analysis of the Post-test

The first objective of this study was to determine whether the experimental group's reading comprehension performance had improved between the pretest and posttest. Following sixteen weeks of intervention, the reading comprehension abilities of the group were compared using the posttest results. Any statistically significant variations between the experimental group's posttest results and pretest outcomes were examined using descriptive analysis and paired samples t-tests. In addition, effect size was computed to see the magnitude of the result. Consequently, the pre- and post-tests results are analyzed in the following section.

Table 2: Descriptive Statistics and Paired Samples T-test Results of the Experimental Group

Components	Tests	Mean	Standard Deviation	T- test	Sig. value	Effect Size	Status
Main Idea	Pretest	3.043	.705	-4.447	.000	0.947	Large
	Posttest	3.652	.572				
Factual Information	Pretest	7.826	1.072	-3.166	.004	0.607	Large
	Posttest	8.347	.572				
Vocabulary	Pretest	7.434	1.532	-2.612	.016	0.503	Large
	Posttest	8.043	.767				
Inferences	Pretest	6.565	1.829	-2.458	.022	0.627	Large
	Posttest	7.478	.947				
references	Pretest	2.478	.510	-4.491	.000	1.226	Large
	Posttest	2.956	.208				
Total score of the	Pretest	78.132	10.215	-8.702	.000	1.076	Large
Total Score of the	Posttest	87.200	6.144				

As we can see from the above table that the participants' average posttest mean scores significantly increased for each of the five reading comprehension components. There was a statistically significant increase in scores from the pretest to the posttest (p < .05), with a substantial effect size of d = 1.076. This difference was consistent across all components (t = -8.702, p = .000).

Thus, the pretest and posttest scores in terms of all components (main idea: t= -4.447, p= .000; factual information: t = -3.166, p =.004; vocabulary: t =.-2.612, p =.016; inference: t = -2.458, p =.022; reference: t =--4.491, p .000) showed statistically significant changes at the p<.05 level. One possible explanation for the experimental group's improvement in overall reading proficiency compared to their pretest results might be that the BL allowed participants to read and participate in forum discussions and chats without any time or location restrictions.

As can be seen in the table above, in addition to the T-test, the magnitude of the effect size (Cohen's d) was calculated for each reading component. A large effect size was exhibited across all of the components. The total score, representing the overall reading performance, demonstrated a large effect size (Cohen's d = 1.076), suggesting a meaningful enhancement in participants' reading comprehension performances.

Overall Posttest Reading Comprehension Results for Both Groups

The second research objective was to assess how well the experimental group (BL-based reading comprehension) and control group (face-to-face reading instruction) performed in terms of finding the main idea, factual information, vocabulary, inferences, and references on the posttest. The data were examined using descriptive statistics and an independent sample t-test. It appears logical to assume that the intervention would cause any significant discrepancies in their mean scores on the post-test, as the pretest did not reveal any significant differences between the two groups at the

beginning of the study. The descriptive and inferential statistics that were calculated for both groups' final post-test scores are shown in the section below.

Table 3: Results of the Descriptive Statistics and Independent Samples t-test of both Groups in terms of Overall reading Performance of the posttest

Components	Control Group			Experimental Group			T-value	Sig. Value
	N	Mean	Standard deviation	N	Mean	Standard deviation		
Main idea	22	3.045	.653	23	3.652	.572	3.317	.002
Factual information	22	7.818	.957	23	8.347	.572	2.263	.029
Vocabulary	22	7.136	.990	23	8.043	.767	3.424	.001
Inferences	22	6.500	1.144	23	7.478	.947	3.116	.003
References	22	2.681	.476	23	2.956	. 208	2.524	.015
Total score of the posttest	22	77.657	9.764	23	87.200	6.144	3.904	.000

The mean scores for finding the main idea in the experimental (M = 3.652) and control (M = 3.045) groups differed for participants in both groups. To determine whether there was a statistically significant difference between the two groups with regard to the main idea, an independent samples t-test was run. According to the mean score and the independent samples test, the scores for both groups (t = 3.317, p =.002) were statistically significantly different at the p<.05 level.

As shown in the above table, the experimental group (M = 8.347) outperformed better than the control group (M = 7.818) in terms of finding factual information. An independent samples t-test was conducted to investigate the effect of BL-based reading on students' reading comprehension performance in finding factual information in the posttest,. The two groups' mean average scores (M = 7.818 and M = 8.347) revealed different outcomes, and there was a statistically significant difference at the threshold level p<.05 for finding factual information (t = 2.263, p =.029).

The performance of both groups in answering contextual vocabulary questions was different, as the above table (M = 8.043 and M = 7.136) demonstrates. The effect of BL-based reading on the students' vocabulary reading comprehension ability in the posttest was investigated using an independent samples t-test. The experimental group seemed to perform better (M = 8.043) than the control group (M = 7.136) in answering contextual vocabulary questions. This indicated that at the p<.05 level, there was statistically significant difference in vocabulary performance between the two groups (t =3.424, p =.001).

As can be seen from the above table, the experimental group (M = 7.478) and the control group (M = 6.500) both had different average mean scores for reading comprehension while making inferences. To investigate the impact of BL-based reading on students' reading comprehension abilities when making inferences in the posttest, an independent samples t-test was utilized, and the findings indicated that there was a statistically significant difference (t = 3.116, p =.003) at the p<.05 level.

According to the above table, the performance of the experimental and control groups in terms of references was also different (M = 2.956, M = 2.681, respectively). The effects of BL-based reading on the students' reading comprehension answering reference questions in the post-test were investigated using an independent samples t-test. Consequently, at the p<.05 level, there was a statistically significant difference in references (t = 2.524, p =.015).

Generally, according to the average mean score displayed in the above table, the experimental group (N = 23) had an average mean of 87.2 in terms of overall reading achievement, while the control group (N = 22) had an average mean of 77.657. According to the descriptive statistics, the experimental group performed better than the control group, and the results of the independent samples t-test showed there were statistically significant differences at the point p<0.05 in the overall reading performance between the control and experimental groups (t = 3.904, p =.000).

Major findings of the study

The first objective of this research was to examine if there was a statistically significant improvement in students' achievement in the posttest reading comprehension skills of the experimental group. To achieve this objective, descriptive and paired samples t-test were computed. After 16 weeks of intervention, the findings indicated that the experimental group participants showed a positive result in all the five components of reading. In all components, participants' reading comprehension performance on the posttest was statistically significant compared to their pretest reading comprehension performance. The pretest and posttest reading comprehension scores in terms of all components (main idea: t= -4.447, p= 000; factual information: t=-3.166, p =.004; vocabulary: t =-2.612, p =.016; inference: t = -2.458, p =.022; reference: t = -4.491; p =.000) displayed statistically significant changes at the p<.05 level. Hence, the treatment group had a significant difference in their reading comprehension performance across all components in the posttest than their pretest. Statistically significant differences were also observed in the overall pretest-posttest outcomes at p < 0.05 (t = -8.702, p = .000) with a large effect size (Cohen's d= 1.076).

The second research objective was to examine how well the experimental and comparison groups performed on the posttest. The data were examined using descriptive statistics and an independent sample t-test. The average mean score displayed that the experimental group (N = 23) had an average mean of 87.2 in terms of overall reading comprehension components, while the control group (N = 22) had an average mean of 77.657. According to the descriptive statistics, the experimental group performed better than the control group, and the results of the independent samples t-test also displayed there were statistically significant differences at the point p<0.05 in the overall reading performance between the control and experimental groups (t = 3.904, p =.000). Overall, the findings from the post-test indicate that the blended learning approach significantly enhances students' reading comprehension compared to traditional face-to-face instruction.

Discussion

The findings of this study showed that the post-test mean scores of the experimental group was higher than that of the comparison group, suggesting that blended learning effectively enhanced the participants' reading comprehension skills. In line with this study, Alnoori & Obaid (2017), Behjat et al. (2012), and Ghazizadeh & Fatemipour (2017) also revealed a significant improvement in students' reading comprehension abilities through blended learning in the context of learning English. There was no statistically significant difference in reading comprehension abilities between both groups before the intervention. However, a statistically significant difference emerged in all variables following the implementation of the treatment.

Similarly, studies by Kheirzadeh & Birgani (2018) and Yudhana (2021) confirmed that mean differences in students' reading comprehension skills were noted between the treatment and comparison groups after implementing blended learning. The current study's findings were in line with these conclusions since the participants' mean scores after treatment differed from those of the comparison group. This is done because research backs up blended learning approaches, which have students do online coursework at their own pace while receiving instruction appropriate to their skill level.

As stated in the methodology section of this study, the course reading materials were adapted and uploaded onto a Moodle platform that was exclusively accessible to the experimental group. As a result, the treatment group had access to the existing materials in e-learning formats in addition to the usual in-person learning materials. The blended learning approach combines the advantages of online learning with in-person interactions to provide higher education students with the best of both worlds (Owston & York, 2018). Due to its increased student participation and flexibility, it is advised. Research by Bataineh (2017) and Kim (2014) revealed that participants exposed to blended learning advanced more than those merely receiving conventional instructions.

Moreover, according to research conducted by Szymaska & Kaczmarek (2011) and Verezub & Wang (2008), students who engaged in a blended learning reading course incorporating both printed and online texts demonstrated enhancements in their comprehension and retention of the materials. These findings suggest that reading comprehension skills among students were previously believed to be positively influenced by blended learning. Prior to the intervention, there was no statistically significant difference in the mean scores of the two groups. However, implementing blended learning in the experimental group led to significant differences between the two groups, thus supporting the alternative hypothesis. This indicates that educators teaching reading skills

should be cognizant of their students' technological requirements and contemplate blended learning as an alternative instructional approach to effectively cater to their students' needs.

To summarize, the primary aim of the study was to examine the impact of blended learning in improving university students' reading comprehension skills. A comparison was made between the reading comprehension scores of two groups: an experimental group exposed to blended learning and a control group assumed to receive conventional classroom instruction. Statistical analysis, including an independent sample t-test, was employed to compare the groups' mean scores. Initially, there was no significant difference in the mean pretest scores of the two groups, indicating comparable baseline comprehension skills. However, after 16 weeks of intervention, the experimental group demonstrated a significant increase in mean scores compared to the control group. Further statistical analyses, including independent samples t-test, paired samples t-test, and effect size calculations, confirmed the statistical significance of this improvement within the experimental group, and there were statistically significant differences in reading comprehension scores between students who received BL-based instruction and those who received traditional instruction. Thus, the null hypothesis was rejected, and the researcher suggested that this improvement could be attributed to the combination of learning resources in the blended learning approach, positing that the reading comprehension abilities of university English as Foreign Language (EFL) students could be significantly enhanced by integrating traditional in-person instruction with online materials or activities.

CONCLUSION

This study aimed at assessing how blended learning impacts the reading comprehension abilities of first-year social science students. The experimental group participated in a Communicative English Language Skills course employing a blended learning approach, which combined online and face-to-face sessions, while the control group received the same course solely through conventional face-to-face instruction. Results after 16 weeks of intervention indicated that students in the experimental group, exposed to blended learning, performed better in a reading comprehension skills test covering the five components of reading comprehension. This suggests that a blended learning approach significantly enhances students' comprehension of written texts.

This research fills a gap in understanding the effects of blended learning, particularly due to the dearth of related studies conducted in Ethiopian universities overall and in the specific context of this investigation. However, it did not explore the impact of blended learning on other language skills or the attitudes and motivation of teachers and students towards this approach. Consequently, Ethiopian higher education institutions should reassess their policies and teaching strategies given the rapid advancements in technology and language instruction. Moreover, English language instructors at higher education institutions should develop tailored methods to meet the needs of their students, especially in teaching reading comprehension, recognizing that learning is multidimensional and enhanced by various inputs and sources.

Multimodal learning, which makes use of a variety of media forms and instructional tools, emerges as a key remedy in educational settings. Since there is no such thing as a 'one-size-fits-all' solution in the teaching-learning process, blended learning instruction could be a prime example of this. The results of this study underscore how crucial it is to give blended learning top priority at all educational levels. As such, researchers at higher education are urged to carry out extensive research in the field of blended learning.

FUNDING STATEMENT

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