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Effects of Blended Learning Approach on Students' Reading Comprehension Skills and Motivation to Read: First Year Students at Hawassa University in Focus

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Abstract

The purpose of this research was to examine the effects of blended learning on university students' reading comprehension skills and motivation to read. To prove the research hypotheses, the researchers used a quasi-experimental research design. Quantitative data were collected through tests and questionnaires. Reading comprehension questions were adapted from TOEFL iBT test and the motivation questionnaire was modified from the ARCS model. To identify the participants of the study, the researchers used purposive sampling technique. The sample consisted of 76 university students: the Experimental Group (n=38) and the Comparison Group (n=38). Combining the online computer assisted and the conventional face-to-face instruction (blended learning approach) was used as an intervention. Both groups had equal class times; three contact hours in a week for a semester, lasted for sixteen weeks. Data were tabulated and analyzed using t-test statistics for SPSS version 26. The result indicated that statistically significant differences were measured between the treatment and the comparison groups in their reading comprehension skills and motivation to read after the sixteen-week interval of blended learning. Finally, it was recommended that higher institution instructors should evaluate their instructional approaches and blended learning should be given emphasis with no restrictions of class levels. The authors of this study also recommended that rigorous researches should be carried on in the areas of blended learning with regard to English language teaching and learning in general, and reading comprehension skills and students' motivation to read in particular.

Key words: /Blended Learning/ Comprehension skills/ Effects/ Motivation/ Reading/

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1. Introduction

1.1. Background to the Study

Ethiopia is one of the developing countries found in the Horn of Africa. The first significant document that served as a framework for English language instruction in Ethiopia was the 1947–1948 English curriculum. The subsequent growth and development of the English language are thus, characterized by the student's educational interests. Curriculum records before the 1940s in Ethiopia are either "non-existent" or "difficult to access," according to the Institute of International Education briefing paper (2012, *p*.10). However, it is said that Emperor Haile Selassie, who returned after nearly five years of exile to the UK during the five years of Italian control, introduced the study of the English language in the 1940s (Bishaw & Lasser, 2012).

Technology has an interconnected relationship with English language education in general and language skills in particular (Singhal, 1997). Going back to the past, the audio-visual language teaching methodology was one of the practical evidence. In those days, English language teachers were using language laboratories to enable students to develop their skills. Following that, the implementation of different technology progression in the current situation has opened new opportunities for education in general and English language learning in particular for the entire world. Varied web generations that certainly contributed to the education process emerged afterward. Accordingly, the Web 1.0 system was developed to send a one-directional message. Succeeding, the Web 2.0 learning platform that enabled interaction, collaboration, and communication between teachers and pupils was created. Currently, Web 3.0 and many others have brought the openings to look for essential facts and information in a systematized manner (Miranda, Gualtieri, & Coccia, 2010). Afterward, different technology tools emerged to support English language learners to enhance their skills. Blended learning is a new advancement of the 21st century to the rising road to eLearning and online resources. In addition, it is a notion in which knowledge transfer activities are carried out in-person and online (Lim, Morris, & Kupritz, 2019). Blended learning is the combination of conventional and technological learning methods, according to Ikhwan and Widodo (2019).

In multiple contexts, it has been shown that blended learning is more effective than face-to-face or fully online instruction. Moreover, with respect to the larger values of blended learning, many investigators have revealed that learners engaged in a blended learning approach scored better results as compared to traditional face-to-face instruction (Means, Toyama, Murphy, Bakia, & Jones, 2010, Smith & Hill, 2019). As it has been observed from the various reviews of related literature, students benefited a lot from blended learning and this might be the time of shifting from the customarily instruction to the new emerging approach.

1.2.   Statement of the Problem

The major purpose of this research was to examine the effects of blended learning on first-year university students' reading comprehension skills and motivation to read. Currently, one of the many cutting-edge ideas that educational institutions are grappling with right now is the use of technology in the academic sector. Curriculum standards and the coordination of the different parts of the educational system have received more attention in initiatives to reform education over the past 20 years. Thus, higher education institutions are responsible for providing lecturers (professors) and students with access to the technological infrastructure for better instruction in light of the expanding usage of technology in the academic world (Felix, 2003).

Blended learning is a new paradigm of instructional approach. Literature confirms that students attending classes using this approach outshine in their academic career through interacting, sharing, collaborating, and asking questions either in using synchronous (real-time) or asynchronous (self-paced)

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technology support modality that gives them more time as compared to the conventional face-to-face methods (Bonk & Zhang, 2006). The foundation for a student's learning is laid by the ability to comprehend written texts, which is one of the language skills. The ability to recognize a written document and comprehend its contents is the key idea in reading texts. Students and teachers thus, greatly value reading comprehension since it improves language learning and assists learners in reading for a variety of purposes (Snow, 2002).

On the other hand, there are some factors affecting students not to comprehend written texts aptly. According to the literature in the areas of reading comprehension, educational factors such as teaching method, and instructional time, and non-educational factors, such as home environment, motivations, and prior knowledge, are among the factors that affect students' reading comprehension skills (Roomy, & Alhawsawi, 2019). However, to alleviate the problems, particularly with regard to the teaching method and motivation to read, new and technology-assisted instructional approaches have emerged. One of these technology-assisted instructions is blended learning. As it is suggested by contemporary studies, technology is a catalyst for teaching and learning because it supports users with creative, learner-paced learning opportunities (*e.g.,* Ally, 2004; Bataineh & Bataineh, 2006; Harris, Mishra & Koehler, 2009). It is also advocated that technology is beneficial in language teaching and learning; because it creates authentic contexts for students (Blake, 2013; Stanley, 2013; Gilakjani, 2014). According to the literature, technology is essential for teachers to impart knowledge and skills in a way that best matches the needs of their students, and it is indispensable for independent language teaching (Morales & Windeatt, 2015).

Technology deployment necessitates the usage of certain software or online learning platforms. One of these online eLearning methods is blended learning, which happens when online and face-to-face interactions are merged. Blended learning features a more synergic learning structure that unites traditional classroom instruction with online instruction, enabling flexible learning and additional possibilities for enhancing and practicing what is being taught (Tucker, Wycoff & Green, 2017). According to extensive research across a wide range of disciplines, learning outcomes, student engagement, and course satisfaction have been identified as the three main themes regarding the effectiveness of blended courses in a larger context of education, (Campbell, 2010; Govender, 2010).

Logically, learning occurs as a result of interactions between various stakeholders, including approaches, methods, students, teachers, technology, materials, and assessments. Educational institutions from low to high levels use various means to help students directly or indirectly influence the quality of the teaching and learning process, and the improvement of learners' knowledge skills and ability levels (Tokan & Imakulat, 2019). Specifically, the role of eLearning in boosting up students' motivation is becoming a considerable topic in many studies. Different studies have been carried out to see the relationship between the current eLearning technologies and students' motivation.

Banados (2006) conducted a study to promote the development of integrated language skills. Thirty-nine EFL university students were given a communicative English course utilizing a blended learning approach. A perceptual questionnaire and diagnostic tests were used to collect the required data. The study discovered that blended language learning resulted in "a substantial improvement in the students' language skills as well as levels of motivation" (Banados, 2006, *p.* 544). The findings also implied that blended learning design could be a practical choice for language teaching and learning in situations where class time is limited.

Klemsen and Seong (2013), using a survey of 19 college students, also did a similar study on student satisfaction in mixed-ability learning environments. The results showed that students were mainly in favor of blended learning. In a recent study of 360 university students, Wu and Liu (2013) highlighted the importance of the selected technology as a key factor, and found that blended instructional delivery had a positive impact on student motivation for the course.

In addition to the overseas research findings, the utilization of blended learning has been the subject of studies done in Ethiopia, and the findings show that the blended learning approach significantly improved students' English language proficiency (Temechegn, 2011; Tadesse, 2015, Mulu & Mena, 2016; Gizealew & Sisay, 2019; Tesfaye, 2021). As a result, some university departments in Ethiopia are now employing blended learning, a strategy that combines face-to-face and online instruction, to better meet the needs of language learners as well as national, and centralized educational authorities. Researches have been also done to determine its benefits and drawbacks based on a variety of theoretical and methodological pillars (Tesfaye, 2015; Etana, 2020).

These institutions and departments have tried to implement blended learning in some of their courses. However, to the authors' best review of published works, research may have not been conducted or have been shelved with regard to the effects of this strategy on students' reading comprehension skills and motivation to read in general, and in the setting of this research in particular. Especially, this research is different from the previous studies since the focus is on specified technology, which is blended learning. Therefore, to close the gap in the implementation of blended learning in higher education, the authors were greatly motivated to examine the effects of blended learning on first-year students' reading comprehension skills and motivation to read at Hawassa University. Thus, the present study aimed at providing answers to the research questions and the hypotheses listed below:

(1) Is there a statistically significant difference in the mean scores of reading comprehension skills between students taught in a blended learning and a conventional face-to-face approach?
(2) Is there a statistically significant difference in terms of the level of motivation to read between students taught in a blended learning and a conventional face-to-face approach?
Following is a description of the formulated alternative and null hypotheses:

H0: There will be no statistically significant difference between students taught reading comprehension skills in a blended learning and a conventional approach in post-test results.
H1. There will be statistically significant differences between students taught reading comprehension skills in blended learning and a conventional or face-to-face in post-test results**.**
H0: A statistically significant result will not be obtained in motivation to read between students taught in a blended learning and conventional approach in post-test results.
H1. A statistically significant result will be obtained in motivation to read between students taught in a blended learning and a conventional approach in post-test results.
Based on the review of related literature, this study stands for H1 in both cases.

2. Reviews of Related Literature

2.1. Models of Blended Learning

There are different types of blended learning models. Overall, they are classified into four: Rotation Model, Flex Model, A La Carte (formerly Self-Blended Model), and Enriched Virtual Model. Some of these models mentioned by (Staker & Horn, 2012) are described below. The Rotation blended learning model is branched into the Station Rotation Model and Lab-Rotation Model. In the Station Rotation Model, students alternate between various stations on a set timetable to complete assignments online or interact with the teacher in person. In elementary schools, the rotating model is more frequently employed.

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Similar to station rotation, the lab rotation paradigm is another popular one that is used in computer labs in schools. The individual rotation model, which is a branch of the Lab Rotation Model, is typical in settings where differentiation and personalization are highly valued, for gifted and talented students. This model allows students to work individually through prescribed lessons or instructional units until they have mastered the material before "rotating" to the following activity on their agendas.

The Flipped Classroom Model, which is part of the Station Rotation Model, is the blended learning paradigm with the widest definition. In this model, students are introduced to material or concepts outside of the core classroom, including at home (usually through audio recordings or videos), and then complete practice exercises and individual learning with the teacher and peers inside the core classroom. Moreover, this is where the name comes from because the learning structure is "flipped" in a traditional instructional model.

In the Virtual or Enriched Virtual Model, students attend their traditional brick-and-mortar school for some face-to-face classes while also working on their assignments remotely. The student will likely be put on an unusual, "non-traditional" timetable as a result. A La Carte (formerly Self-Blended Model) is another blended learning model. According to this model, accessing teachers or professionals for exceptional courses may be challenging. The A La Carte model may be the solution for this kind of problem. This model allows students to take an online course with a 'teacher of record' and then report to their 'traditional' classroom for other classes.

The "Flex" Learning Model, on the other hand, allows students to complete online classes at their own pace while also attending traditional classroom sessions where the teacher is on hand to offer help, direction, and face-to-face teaching. Students really do have a lot of flexibility and ownership over their education with this model. Due to this fact, the researchers decided to use the flex blended learning model to run the instruction.
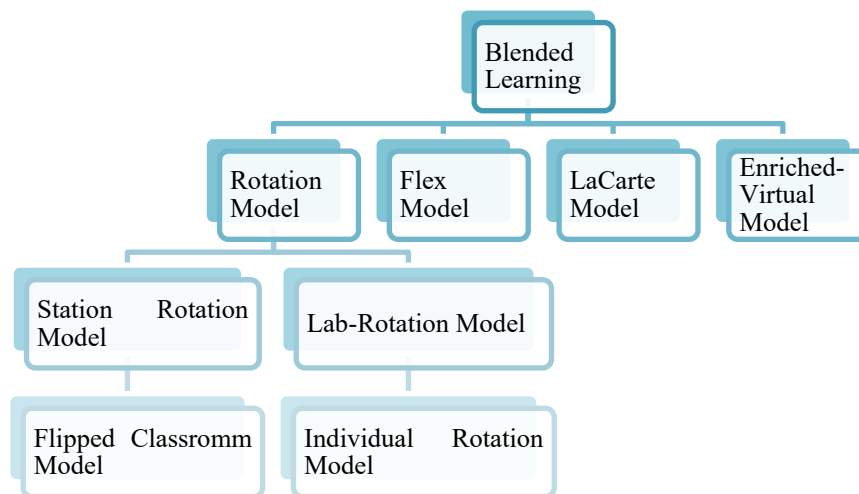

Figure 1: Types of Blended Learning Model (Staker & Horn, 2012, *p.*10)

2.2. The Rationale for Blended Learning in Developing Students' Reading Skills

Literature supports that blended learning is helpful in developing students' language skills particularly in improving reading skills. For instance, as Karkour (2014) claimed, students benefited a lot from blended learning in improving their reading skills. He also added that, it creates opportunities for teachers and students access to the reading materials in an online and face-to-face setting. According to him, the current scenario in the whole world shows, technology is beyond the exchanging of instructional resources; for example, people are using like zoom technology for meetings, mobile phones for online conferences, etc. Thus, these writers , confirm that blended learning as opposed to the only face-to-face instructional approach, offers bigger openings to students' for the reason that it provides multi-sources for the daily reading activities.

2.3. Motivation

The effectiveness of combined teaching methods is essential to the success of blended learning since it will inspire students to actively participate in language learning. When both methods, traditional face-to-face and online, are used together, language learners typically exhibit their satisfaction (Albiladi & Alshareef, 2019). In other words, motivation is a life talent. It is not only associated with confidence, but it is also a sign that leads to a happy and serene life. In a classroom that has been carefully designed for blended learning, the instructor works with the students to help them understand their performance, create their own goals for growth, and give them the motivation they need to succeed (Tucker, *et al.,* 2017).

Additionally, using technology as a teaching strategy might have a favorable positive impact since students who have a positive attitude toward a learning strategy tend to be highly motivated (Akbarov et al., 2018). Therefore, it has been conceptualized that instruction through a blended approach would positively affect students' reading comprehension skills and motivation to read.

2.4. Reading Comprehension

Reading comprehension provides knowledge integration, which supports training procedures and effective coping in academic and personal contexts (Chandran, & Shah, 2019). According to UNESCO (2009), reading comprehension in higher education must give students the freedom to self-direct their academic and professional learning as well as foster critical thinking in support of community service. However, recent studies (Afflerbach *et al.,* 2015) claimed that some university students lack the skills necessary to deal with academic texts or struggle with reading which may restrict academic performance that focuses on written texts.

3. Methods

3.1. Setting of the Study

The study was conducted at Hawassa University (HU), an Ethiopian residential national university located in Hawassa- Sidama Region. It is located in southern Ethiopia, 278 kilometers (173 miles) from Addis Ababa.

3.2. Research Design

The main objective of this research was to examine if the blended learning approach has effects on the first-year university EFL students' reading comprehension skills and reading motivation. To attain the objective of the study, a pre-test post-test, quasi-experimental research design was found to be suitable (Table 1).

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Table 1

Representation of the Research Design

Group	Pre-test	Treatment	Post-test
1:Experimental	1/ Reading Comprehension Test 2/ Motivation Questionnaire	Blended learning+ Face-to-Face Approaches	1/ Reading Comprehension Test 2/ Motivation Questionnaire
2: Control	1/ Reading Comprehension Tests 2/ Motivation Questionnaire	Only Face-to-Face instruction (No treatment)	1/ Reading Comprehension Test 2/ Motivation Questionnaire

Source: Field Survey

3.3. Samples and Sampling Techniques of the Study

In the Academic year of 2020/2021, there were 104 sections of freshmen students at Hawassa University. Among these, 32 sections were assigned under the Social Science College while 72 sections were in the Natural Sciences. From this based on the feasibility of the study to the researchers, the Natural Sciences College was preferred. Further, the researchers used this college for the reason that natural science students do not perform better at reading comprehension as compared to social science students who are better at general comprehension of specific academic texts (Shaukat, & Bashir, 2015). Due to COVID-19, there were 35-40 students per class. Among the 72 natural science sections, the two intact sections which had each 38 students, were taken and grouped into experimental (38) and control (38) groups purposively.

3.4. The Research Variables

The study involved independent and dependent variables. While Blended Learning is an independent variable, reading comprehension and motivation to read are dependent variables.

3.5. Instruments

To meet the study's general objective, address the research questions, and examine the hypotheses that had been put forth, two instruments were used. Reading comprehension tests and Attention, Relevance, Confidence, and Satisfaction (ARCS) Model Motivation Scale Questionnaire on a Likert scale were designed as the study's instruments.

Pre-test. The motivation scale questionnaire and the reading comprehension questions were the two forms of the tests. The pre-reading comprehension question test items were adapted from the TOEFL reading practice exam and the motivation scale questionnaire, which had 36 items, was modified from ARCS. The reliability estimate for reading was 0.81, which had a high-reliability value, according to alternate-forms reliability estimates of the TOEFL iBT test (2015 and 2016 data) from the Research Insight Series. With regard to the content and face validity, the test was given to EFL experts (Doctors), who were teaching the English language in university and they approved it. The motivation scale questionnaire also underwent reliability

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testing, yielding a Cronbach's Alpha score of 0.82, and had its face, content, and constructs validity verified by three TEFL instructors with a total of more than ten years of teaching experience.

Post-test. The goal of the post-test was to determine, whether there had been any discernible differences between the treatment and the comparison groups that might be attributed to the implementation of the independent variable. This independent variable is the blended learning approach, as mentioned earlier.

3.6. Measures

The five L-Kert scales (1, 2, 3, 4, and 5) in the questionnaire ranged from 1 Not True to 5 Very True were developed from "The ARCS Model of Motivational Design" (Keller, 2010). Each of the 36 questions in the questionnaire was built using the ARCS principles of Attention, Relevance, Confidence, and Satisfaction.

3.7. The Learning Management System (LMS)

Moodle, a Learning Management System (LMS) that stands for Modular Object-Oriented Dynamic Learning Environment for online learning is used in this study. Among its many users, Moodle has already established itself as a word for a set of tools meant to assist teachers in developing high-quality online learning. The HwU e-learning team is currently using MOODLE as a platform, which hosts nearly all subjects in a variety of disciplinary contexts. Moodle has a lot of potential as a learning management system and courseware package for supporting classroom instructions.

3.8. Instructional Approaches

Modular Object-Oriented Dynamic Learning Environment (MOODLE) was used as an online Learning Management System (LMS) for the experimental group. The study group attended blended learning for 16 weeks. During the experiment, online and offline learning modes were used. Each student under the blended learning had his/her own password-protected account saved on the server. However, the comparison group had classes in conventional (Face-to-Face) instructional approach only. The reading material was designed and uploaded to the HwU campus-based blended learning (http://www e-course.HwU.edu.et). Students had permission to upload and download to the learning platform.

3.9. Procedures of the Experiment

Before conducting the experiment, arranging the teaching and learning material, setting the guidelines for the students on when, how, and why to use the learning management system and the purpose of the program were given due consideration. An ICT expert, working on blended learning technology, gave effective training on how to use the online and offline learning management systems for the experimental group. The guidelines and the teaching and learning materials were designed based on the principles of the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model and the directions given by the Ethiopian Ministry of Education (MoE, 2013).

3.10. Group Formation

The students were purposefully divided into comparison and treatment groups based on the results of the pretest. The two groups had different forms of instructional approach: the treatment group used blended

learning while the control group received traditional or face-to-face instructions. Participants in the experimental and control groups used the same source material, the Communicative English Skills I (EnLa 1011) module, with the exception of the teaching method.

3.11. Data Analysis

Quantitative data, which were gathered through a test and a questionnaire, were analyzed through T-tests such as independent samples and paired samples t-tests as they fit the purposes of this study. Tables were used to present the different statistical forms of the data. The Statistical Package for the Social Sciences (SPSS) version 26 was applied for editing and running statistical data in the study. First, the descriptive statistics was done to examine mean score differences between the two groups. Following this, an independent samples t-test was done using the Statistical Package for the Social Sciences (SPSS) version 26 to measure statistically significant differences between the two groups before the treatment.

3.12. The Research Ethics

All the necessary ethical issues, including consent from the participants and confidentiality, were addressed in this study. Any of the data obtained was not personalized in any part of the study. The anticipated ethical issues were taken into consideration, starting from data collection to analysis and interpretation of this study.

4. Results

This part presents pre-test data collected prior to the experiment using reading comprehension questions and a motivation questionnaire, and post-test data collected following the experiment using the tests and questionnaire. Pre-test and post-test data were shown and handled individually.

4.1. The Participants' Descriptive and Inferential Statistics before and after the Experiment

The descriptive statistics in Table 2 present the experimental and comparison groups' mean scores in the pre-test and post-test of the participants' reading comprehension skills and reading motivation.

Table 2

Descriptive and Inferential Statistics of the Pre-test and Post- test Results for both Groups

		Group Statistics N =76 (Experimental =38) (Control =38)							
Variables	Group	Pre-test		Post-test					
		M	*SD*	*M*	*SD*	*F*	*P*	*t*(74)	*P*
Reading Comprehension Skills	Experimental	12.78	4.30	15.68	3.04	.327	.569	.628	.532
	Control	12.18	4.08	12.13	4.10				
Motivation	Experimental	2.77	.832	3.96	.600	4.980	.079	.454	.651
	Control	2.69	.567	2.91	.524				

Source: Field Survey

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To observe the participants' reading comprehension skills and motivation to read, the study ran a descriptive statistical analysis (Table 2). Accordingly, a major mean difference was not observed in the reading comprehension skills (*M* = 12.78, *SD*= 4.30; *M*= 12.18, *SD*=4.08) and in motivation to read (*M* = 2.77, *SD*=.832; *M*=2.69, *SD*=.567) between the experimental and the comparison groups before the treatment. This indicates that there was no mean difference between the experimental and the control group before the treatment of blended learning.

Parallel to this, in the same table, an independent-samples t-test was done for Levene's test for equality of variances. It has been noted that the assumption of homogeneity of variances was met (*F* = .327, *p* = .569) for reading comprehension skills, and (*F*=4.980, *p*= .079) for motivation. The significance level for reading comprehension skills and motivation respectively is greater than.05, and this indicates that there was no statistically significant difference in the reading skills performance and motivation between the control and experimental groups before the implementation of the blended learning approach. Therefore, it can be said that the groups had almost similar degree of reading proficiency and motivation.

After the interval of sixteen weeks of blended learning, the participants under the experimental and the comparison groups were set for the same reading exam and provided with a motivation survey questionnaire. However, as shown in Table 1, the results indicated that there is a difference between the mean scores of pre- and post-tests of the experimental group (*M*=12.78, *SD*=4.30; *M*= 15.68, *SD*=3.04) reading comprehension skills respectively. Similarly, it is noted that there is a higher mean score difference (*M*=2.77, *SD*=.83, *M*=3.96, *SD*=.600) between the experimental group's pre-test and the post-test mean score of the motivation survey questionnaire. Contrary to this, there is no basic observable mean score differences (*M*=12.18, *SD*=4.08, *M*=12.13, *SD*=4.10) in the reading comprehension skills and motivation survey questionnaire as indicated (*M*=2.69, *SD*=.567, *M*=2.91, *SD*= .524) in the pre-test and post-test results of the control group. From this, it is possible to infer that participants in the experimental group have shown certain changes in the post-test mean score after the action of blended learning. The finding implies the importance of running significance mean difference testing which is addressed below.

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4.2. The Post-test Results of the Control and the Experimental Groups

Paired-samples t-test was used to infer whether the independent variable of the research had statistically significant changes on the dependent variables of the experimental group's pre-test and post-test results. In addition to the paired-sample t-test, Cohen's d, which is a type of measure of effect size between the two means, was used. The criterion of Cohen's as defined by Cohen (1988) is described below:

- <.2 is a small effect
- >.2-.5 is a medium effect and
- >.5 is a large effect size

The mean values and results of an independent samples t-test for both groups at post-tests are presented below.

Table 3

Inferential Statistics of the Post Test Results for both Groups after the Treatment

Tests	Experimental group		Comparison group		$t(74)$	*P*
	M	*SD*	*M*	*SD*		
Reading comprehension skills	15.68	3.04	12.78	4.10	4.28	.000
Motivation	3.96	.600	2.77	.52	8.10	.000

Source: Field Survey

The information in Table 3 shows that the mean scores of the participants' reading comprehension skills and motivation in the experimental group are higher than the comparison group. The findings of the independent samples t-tests reveal that the differences were significant at p<0.05 confirming that participants of the treatment group brought better performance as compared to the comparison group in reading comprehension skills $t(74)=4.28$, $p=0.000$, 95% CI= [1.90227, 5.20299],and motivation to read $t(74)=8.10$, $p=0.000$, 95% CI= [.79110, 1.30668].

4.3. Paired Samples T-test Results of the Experimental Group after the Treatment

The participants' post-test mean scores of the experimental group were used to compare and then to identify the extent of the progress in the participants' reading comprehension skills and motivation after the treatment. Contrarily, the independent samples-t-test was analyzed to examine the statistically significant difference observed between the means within the group after the implementation of the treatment at two different stages (pre-test and post-test) interventions.

In this study, the next step was (1) to calculate the Paired Sample t-tests between the pre-test and the post-test of the experimental group students after implementing a blended learning approach for sixteen weeks, and (2) to examine if any statistically significant difference was observed between the pre-test and the post-test results of the experimental group.

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4.4. Comparison with In-group

The mean values and results of an independent samples t-test for both groups at post-tests are presented below.

Table 4

Paired Samples T-tests of the Reading Comprehension Skills and Motivation

	Pre-test		Post-test				
	M	*SD*	*M*	*SD*	*t*(37)	*P*	Cohen's *d*
Reading Comprehension skills	12.78	4.306	15.68.	3.041	3.93	.000	0.64
Motivation	2.58	.6275	3.96	0.600	9.90	.000	1.61

Source: Field Survey

Based on the results described in Table 4 higher mean scores are measured for reading comprehension skills and motivation after the implementation of the blended learning approach for the study group. The statistical result of the paired samples t-test revealed that changes were statistically significant at p<0.05 alpha level. To describe the statistical significance for both groups, *t* (37) =3.93, *p*=0.000, 95% CI= [1.40350, 4.38597], and *t* (37) =9.90, *p*=0.000, 95% CI= [1.09369, 1.65608]. The effect sizes are large (Cohen's d=.64) for reading comprehension skills and (Cohen's d=1.61) for motivation to read. As could be observed from the results, the statistical significance in the participants' reading comprehension skills and motivation to read is similar. However, while measuring the extent of the effect through Cohen's d measure of effect, blended learning has a considerable variation in students' motivation to read than reading comprehension skills.

5. Discussions

The outcomes of the present study revealed that students welcomed blended learning. In the study, the findings of reading comprehension skills and motivation to read after the blended learning confirmed that there was a higher mean score in the post-test results of the experimental group as compared to the comparison one.

With regard to reading comprehension, Alnoori and Obaid (2017) discovered that blended learning greatly improved the reading skills of English language learners, which is consistent with the current study. They further revealed that learners could practice a variety of reading materials because blended learning is not restricted to a particular place or time, which allows them to advance their reading skills and proficiency without being constrained by the location or timing. Credibly, for instance, if we observe the findings in the present study, before the treatment, a statistically significant difference was not obtained between the participants in the study and the conventional groups for the reading comprehension skills and motivation to read. However, after the treatment of the independent variable, a statistically significant difference was observed in both variables.

In line with this finding, Bataineh and Mayyas (2017) conducted comparative research followed by blended learning instruction and identified that students under the treatment group experienced significant changes in the essential skills of reading while practicing to get the gist and the specific information of written material for better comprehension. This idea strengthens the findings of the current study that depicts the participants under the treatment showed substantial changes in their reading skills score.

Similarly, a study by Bataineh and Mayyas (2017) confirmed that mean score differences were attained between the treatment and the comparison groups in the student's reading comprehension skills after the implementation of blended instruction. Thus, the findings of the current study align with these conclusions since the participants' mean scores after the treatment exhibited changes in the mean score results as compared to the comparison group after the study. This is done because as literature approves in a blended learning strategy, students work online activities on their own time and receive instruction that is appropriate for their skill levels. Teachers frequently give real-time data via an educational dashboard to track the success of students working at various ability levels (Horn & Staker, 2015). Then, as the finding implies, with the aim of accelerating students' skill progress, instructors can use the data to identify areas where students need extra assistance by improving their capacity to distinguish between blended and face-to-face instruction.

As the procedure of the current study indicates, reading material was organized and uploaded to the platform created for the blended learning purpose and only the study group had access to it. Consequently, in addition to the face-to-face learning material, they had supplementary reading resources in different forms. In line with this, a case study done by Hamdan, Mohamad, and Shaharuddin (2017) clearly asserted that students gained a lot from online supplementary reading materials provided in the forms of diagrams, audio, and video that enabled learners to. One of the features that distinguish blended learning from solely face-to-face is its flexibility in nature. In addition, because of this scenario, blended learning would be preferable and students are more motivated and attracted towards to it. Substantiating this finding, the study of Bataineh and Mayyas (2017) and Kim (2014) reported that in the study done on blended learning, participants provided with the blended learning session exhibited better progression as compared to participants engaged in the face-to-face instruction due to access to the online learning resources.

In addition to these, Szymaska and Kaczmarek (2011), in the study that examined the effects of blended learning on reading comprehension, concluded that learners benefited from a blended learning reading course employing printed and online texts in terms of recollection and comprehension of the texts. Before the treatment, it was hypothesized that blended learning would have a positive effect on students' reading comprehension skills. Accordingly, before the implementation of blended learning, the mean score for both groups was at a similar range and a statistically significant difference was not dignified between the groups. However, after the implementation of the blended learning approach in the experimental class, a statistically significant difference was measured between the two groups and thus, the alternative hypothesis is accepted. The finding implies that instructors or professors who teach reading skills to be aware of the needs of students in the existing context of the uses of technology as an alternative instructional approach and strive to help their students.

The second hypothesis for this research was to test whether blended learning had a statistically significant difference in university EFL students' reading motivation. Similar to the results of students' reading comprehension skills, the mean score of the experimental and the comparison group were nearly equal and the independent sample t-test result did not reveal statistically significant differences. However, after the implementation of the blended learning for 16 weeks, the mean score changes were observed between the two groups. That is to say, following the treatment, the experiment group's mean for motivation increased and statistically substantial variation was perceived from the independent samples t-test of the experimental and comparison groups. This could be attributed to the combination of learning mediums. Our finding is supported

by Norberg, Dziuban, and Moskal (2011), who say that the combination of face-to-face and online learning provides motivational values and engages learners in a continuous learning environment. As literature shows, motivation is a core for students' learning in general and language learning in particular. Accordingly, the ARCS Model of motivation questionnaire is becoming one of the indispensable requisites in the process of teaching and learning activities to improve students' academic performances in higher education (Guo, Goh, & Luyt, 2017; Kim, Park, Huynh, & Schuermann, 2017). Support to our finding also comes from Sudarman (2014), who found, as compared to face-to-face instruction, blended learning as more significant in motivating EFL students (in language instruction). This indicates that when students are motivated, they pay attention and try to get the relevance of the content with interest. The finding also implies that, since blended learning is one of the emerging instructional approaches, particularly in countries like Ethiopia, it helps to boost up learners' satisfaction and confidence of language practice independently and interactively. On top of this, statistically significant differences were measured showing that blended learning brought a motivational effect on the experimental group and, hence, the alternative hypothesis is accepted.

At a final point, in addition to the mean score results of the descriptive statistics and statistical significance of the inferential t-tests, the findings from the paired samples test indicate that there is a higher mean score difference between the experimental group's pre-test and post-test results for both variables. Szymaska and Kaczmarek (2011) agreed that learners benefited from a blended learning course employing printed and online texts in terms of both recollection and comprehension of the texts. In particular, greater effect size was also measured within the groups pre-test and post-test results which allow us to speculate that the experimental group performed and displayed much superior results in reading comprehension skills and reading motivation.

Primarily, this study mentioned that, after the implementation of blended learning, there are statistically significant differences in the mean scores of reading comprehension skills and motivation to read between the experimental and control groups taught in a blended learning and a conventional face-to-face approach, respectively. Subsequently, the findings of this study are supported by constructivist theory that places emphasis on learning contexts that help students to experience and build knowledge in the digital age where instructors and students cooperatively explore, inquire, evaluate, and build their own knowledge effectively and efficiently (Lasic, 2011). The finding implies the importance of giving more opportunities for students at the university level to interact with course materials, with instructors, and with other students.

The flexibility of using computers in learning helps students to download lecture notes and learning materials easily. Thus, it develops their skills in browsing through different websites when searching for extra information. Similar finding comes from Moreno, Gonzalez, Castilla, Gonzalez, and Sigut (2007), who emphasize that the findings of such a study [blended learning] are aligned to the constructivist theory in its social dimension of education in encouraging students to work in a humanistic environment that establishes the best results obtained through activity and experience.

In general, the conclusions of this study provide supporting evidence to move forward towards a blended learning environment and the students' responses to the motivation questionnaire and the reading comprehension results after the experiment have realized this scenario.

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6. Conclusions and Recommendations

The purpose of the current study was to examine the effects of blended learning on first-year natural science students' reading comprehension skills and motivation to read. The students under the experimental group were attending Communicative English Language Skills course via the blended learning approach (face-to-face and on line session) while the controlled group was learning the same course only through the face-to-face approach. Both groups were taught the module prepared by the Ministry of Sciences and Higher Education (MoSHE). However, after the 16 weeks interventions, it was discovered that the experimental group students who participated in the blended learning approach outperformed the control group students in the reading comprehension skills test. Furthermore, the results from the ARCS model motivation questionnaire also indicated that the students in the experimental group showed higher interest. Thus, it is possible to conclude that blended learning had significant effects in assisting students in comprehending written texts and arousing their motivation to read. This research is delimited to examine the effects of blended learning on the students' general reading comprehension skills and motivation to read, and their specific aspects of reading comprehension skills and motivation to read. Since related studies on the topic are in existent or limited in Ethiopian universities in general and in the setting of this research in particular, this study has narrowed the gap. However, this study did not investigate effects of blended learning on other language skills or teachers' attitudes toward blended learning. Nevertheless, blended learning is worthless on its own unless teachers are sufficiently aware of it.

5.2. Recommendations

E-learning is currently moving in a different path. As a result, a number of models, hybrid or blended learning and multi-channel learning environments are emerging as a reality. The present and most likely future of learning is situated somewhere in the middle, as it is typical for dichotomies. Therefore, in light of the rapid advances in technology and language teaching and learning approaches and students' motivational factor, higher education institutions in Ethiopia should examine their pedagogical methods and policy. Further, as learning is multifaceted and enriched by a variety of inputs and sources, higher institution instructors should create a strategy that caters to the needs of students in the teaching of reading and let them motivate while being taught. Furthermore, since many universities in Ethiopia are tending to use technology like the Student's Information System (SIS) for limited purposes, blended learning awareness should be given for university instructors to supplement their instructional approaches.

The way that the human brain processes information is quite distinctive from person to person. Moreover, it is true that every human brain has a distinctive structure, like fingerprints. This uniqueness is due to differences in genetic (nature) coding and life experiences (nurture). This implies that everyone in a classroom receives, retains, and processes information in a different way. If so, how teachers or instructors can address the whole class using the same instructional approach? The practice of diverse types of media and teaching tools (Multimodal learning) to instruct and educate learners is the basic solution for this instance. One of the effective approaches to meet this is blended learning which gives learners all the benefits of interaction directly with learners in a classroom environment combining face-to-face teaching with online instruction through the Learning Management System (LMS). The findings of this research strongly recommend that the concept of blended learning should be given due attention regardless of level of education. Therefore, researchers at higher institutions should strive to do rigorous studies in the areas of blended learning.

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Authors' Contributions

1. Collected, analyzed, interpreted the data, and produced the manuscript
2. Supervised, commented the draft, and revised the final versions of the manuscript.
3 Supervised, commented on the draft, and revised the final version of the manuscript.

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