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The Effect of Graded-Reading Websites/Applications on EFL Undergraduates' Reading Comprehension during COVID-19 Pandemic

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Abstract: The COVID-19 pandemic has resulted in many educational changes, especially the shift towards the use of technology in all subjects. This longitudinal study was conducted to investigate the effect of learning environments—blended and online, alone and with graded-reading websites/applications—on the reading comprehension of Saudi undergraduates majoring in English during COVID-19 pandemic. In this study, 130 participants were selected (control: male [N = 21], female [N = 54]; or experimental: male [N = 21], female [N = 34]). Although the four gender-based groups were exposed to the same learning environments—first blended and later online, which were either partially or dependent on technology—only the male and female experimental groups were required to use graded-reading websites/applications for approximately 10 months during the COVID-19 school lockdowns. All participants took four tests (pretest, posttest 1, posttest 2, and delayed posttest). Using the SPSS program, the results indicated that the learning environments alone had a limited positive effect on the control groups' reading comprehension in the short term, which either decreased significantly (male control group) or remained unchanged (female control group) in the long term. There were significant differences between all control groups and experimental groups across all tests ($p < 0.000$). However, the experimental male group outperformed their male counterpart across all posttests except for the second posttest: experimental male group mean was 15.43 whereas it was 16.19 for the control male group. However, combining learning environments and graded-reading websites/applications yielded gradual positive effects on the reading comprehension of the experimental groups in the short term, which continued into the long term for the male experimental group. The experimental groups outperformed the control groups on at least two out of three posttests. The study concluded that the effect of technology on the reading comprehension of Saudi male and female undergraduates is bounded by the type of specialized technology (i.e., reading websites/applications) and the applied learning environments (i.e., blended and online). Additionally, the study indicated that there is a need to investigate other important factors related to technology used in Saudi institutes, as well as its effects on students' learning processes in ongoing changes in the education sector in Saudi Arabia.

Keywords: graded reading; reading websites/applications; technology; EFL; COVID-19

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1. Introduction

While countries are at different points in their COVID-19 infection rates, there are currently more than 186 countries affected by school closure due to the pandemic [1–3]. Therefore, as a result of COVID-19, education has changed dramatically, with a distinctive rise in e-learning, whereby teaching is undertaken remotely or virtually and on digital platforms. The closure of all educational institutions in Saudi Arabia, due to the COVID-19 outbreak, has caused an unplanned rapid shift from the customary "traditional" learning

approach [2–4] to the new government-endorsed approach, namely, online learning. Such changes from traditional face-to-face instruction to use of technology in classrooms have yield issues in the effectiveness of use of technology for all subjects. Teachers have found the learning experience challenging and consider that it failed to meet the needs of the students. Since the beginning of the period of school suspension in Saudi Arabia, the MoE has worked hard to efficiently adapt the educational system to distance learning [2,3]. According to Al-Bogami and Elyas, regarding the current educational shift "the Ministry of Education was in a dilemma. Remarkably, nonetheless they managed to control the situation by introducing the new official way of learning and creative way of online learning" [5]. In our paper, we intended not only to investigate English reading comprehension by using different online websites but also to examine how such websites have impacted learning English for Saudi ungraduated students.

Improving reading comprehension in the English as a foreign language (EFL) field is becoming an increasingly important goal in applied linguistics. Recent technological developments have heightened the need to investigate recent and advanced online applications to improve reading comprehension skills. Studies in the field of reading comprehension and the use of technology in improving such skills are considered essential. These studies compare and identify appropriate applications for improving reading comprehension in specific learning environments [6]. In addition, researchers have specifically focused on difficulties in the understanding of the text during reading, as EFL learners tend to face difficulties in this area [7].

Although many studies have investigated the role of technology in developing reading comprehension, the issue of developing EFL learners' reading comprehension has not been fully examined in the context of Saudi Arabia. In addition, exposing EFL learners to texts with different levels of difficulty is a practical way to develop their reading comprehension abilities. Therefore, using websites/applications that provide EFL learners with this exposure may efficiently improve their abilities through digital scaffolding that allows them to reach higher levels of comprehension [8]. According to Rydland et al. [9], when learners are provided with texts of different levels of difficulty, they master different reading skills gradually by connecting previous knowledge to new knowledge while activating their schemata. However, to the best of our knowledge, no study has investigated the role of graded-reading websites/applications in improving EFL learners' reading comprehension, especially in the Saudi context.

2. Literature Review

2.1. Theoretical Background

Researchers have proposed various theories to understand the process of reading comprehension, thereby creating valuable opportunities for EFL reading research. One prominent theory in reading comprehension is the schema theory, which states that the reader goes through a complex internal process during reading. The process involves interactions between the reader, writer, text, and the reader's previous knowledge, which leads to an accurate understanding of the information presented in the text [9]. Therefore, according to this theory, EFL teachers should activate their students' previous knowledge and connect it with new knowledge to obtain desirable outcomes.

Wood et al. presented the concept of scaffolding [10], which refers to any teaching technique used by the teacher to help the learner understand the presented material through the zone of proximal development proposed by Vygotsky [11]. The zone of proximal development refers to the gap between what a learner can execute without help and what they can execute with the guidance of an adult. Thus, the term "proximal" refers to those skills that the learner is "close" to achieving [12]. In this study, digital scaffolding was provided to EFL learners to help them read texts with varying levels of difficulty to improve their reading skills. Ardeshiri [8] asserted that digital scaffolding helps learners improve their reading comprehension skills independently. He confirmed that digital scaffolding refers to a variety of digital support that assists a language learner in developing new skills

(e.g., reading) within the zone of proximal development with the goal to moving toward greater self-regulation to complete a given task.

2.2. Using Technology in Learning

The second half of the last century has witnessed a significant improvement in computers, phone applications, and learning programs for fostering the learning process. Researchers and educators in the field of teaching and learning, along with technology experts, are constantly inventing new technological tools to support learners and teachers as well as the learning process [13]. However, Golonka et al., who reviewed over 350 studies addressing the effectiveness of said technologies in foreign language learning (EFL) and teaching and who compared new educational technologies with more traditional methods and materials, concluded that only a few of these studies were well-designed and can empirically substantiate their positive impact on learning [14]. In addition, the use of such tools for learning requires the teachers' expertise and sometimes training as well [15]. Research in this field has reported promising results regarding the use of technology to support the learning process [16–20]. Presumably, how teachers activate these tools and the pedagogical need for such tools are essential factors in obtaining desirable benefits of technology in classrooms [21]. Therefore, the employment of technology enables learners to access a broad range of rich foreign language exposure, which may not be feasible in traditional classes. Abdel Latif emphasized that to overcome these challenges, there are several coping strategies to overcome these challenges such as "planning for online teaching, managing online classrooms, supporting students' mental health, enhancing students' ability to use/access technology, fostering active language learning engagement and motivation, and promoting teacher professional practices and wellbeing" [22].

2.3. Using Technology to Foster EFL Reading Comprehension

In traditional methods of language teaching, teachers normally depend on textbooks that are not stimulating enough for students to have an enjoyable and effective learning environment. Therefore, EFL learners tend to face difficulties in reading comprehension that stem from the inactivation of communicative reading strategies and a lack of motivation and authentic materials [23,24]. Thus, EFL teachers can employ different reading techniques as well as use technology to make the learning process easier and more enjoyable [25]. Improving reading skills using authentic materials is a required strategy to enhance EFL literacy and critical literacy skills. The use of technology in reading comprehension classrooms has been proven to improve learners' skills [26–28] and the issue has attracted considerable attention in supporting EFL learners. Teachers should choose the appropriate kind of technology and help learners deal independently with authentic texts [29].

It has also been hypothesized that employing technology in teaching EFL reading comprehension offers learners additional vital benefits along with learning outcomes [30]. Learners can read authentic texts independently with the help and guidance of the teacher. Accordingly, students' motivation to read in English increases by reading authentic texts outside the physical boundaries of the classroom. Furthermore, the use of technology would create a special teacher–student relationship, which, in turn, would reverse the teacher and students' roles in the learning environment [26].

Studies investigating the impact of technology on developing EFL learners' reading comprehension skills started concurrently with the spread of technology. Researchers and educators are constantly discovering new technologies that may improve literacy and reading comprehension skills for EFL learners [31]. Previously, technology and reading studies dealt with improving critical reading skills in a computer-networked environment [32]. For example, Usó-Juan and Ruiz-Madrid examined the effect of e-reading on EFL students' skills by comparing traditional and online reading teaching methods [33]. An academic reading test and a reading strategy questionnaire were used in said study to develop the students' reading skills. The results revealed that online reading was a helpful means to im-

prove students' reading comprehension skills. The results of other studies are similar to the aforementioned study on the effectiveness of incorporating technology into teaching [29].

In light of recent research in technology and improving EFL reading comprehension, the use of technology is not confined to the use and application of computers, but also extends to telecommunications and recent mobile applications [32]. Taj et others explored the effect of both computer-assisted language learning and mobile-assisted language learning on EFL reading comprehension [34]. Using a quasi-experimental design, they employed computer-based reading comprehension exercises. Vocabulary was taught through WhatsApp. Posttest results of the reading comprehension achievement test indicated that the experimental group outperformed the control group. Such a study, along with other recent studies, provided evidence for the advantages of using technology to teach EFL reading comprehension skills [26–34].

Although extensive research has been conducted on the effect of technology on improving reading comprehension in EFL learners, there are three main reasons for conducting this study. First, there have been no studies in the EFL field, in general, and in a Saudi context in particular, that address the topic and impact of employing graded-reading websites/applications on enhancing the reading comprehension of EFL male and female undergraduates. Second, in studies that have already been conducted, the comparisons were made between a control group exposed to traditional learning environments (i.e., on-campus classrooms) with an experimental group exposed to blended or online learning environments (i.e., on-campus classrooms and/or virtual classrooms) and not between control and experimental groups exposed to the same blended learning environment or online learning environment. Third, there is a need to obtain information on the type of effect that the previously mentioned technology will have on the reading comprehension of said participants, when and where it will take place, and for how long it will last. Consequently, the following research questions were posed:

1. Are there any significant general and gender-specific differences within the control groups for various tests?
2. Are there any significant general and gender-specific differences within the experimental group for various tests?
3. Are there any significant general and gender-specific differences between the control and experimental groups for various tests?

3. Method

3.1. Research Design and Settings

This research has longitudinal experimental quantitative research designs [35] and was conducted at a university in Saudi Arabia where English is taught as an EFL subject.

The data were collected by administering adopted reading tests before, during, and after applying a reading-related experiment to Saudi EFL participants over a period of three semesters (approximately 10 months), starting from the academic year 2019–2020 to 2020–2021.

To this end, a questionnaire was distributed among students to investigate the above research questions between genders (male and female) and groups (control and experimental) and treated statistically using the SPSS program. Descriptive statistics were employed using IBM Statistical Programme for Social Science (SPSS® ver. 24; IBM, Armonk, NY, USA) to analyze students' responses to the questionnaire items in terms of frequency, percentage, mean, and standard deviation. Cronbach's alpha reliability test was computed using the SPSS® software. The value of Cronbach's alpha was 0.971, which indicated a significantly adequate level of reliability. The following sections explain in detail the research design and instruments for the current study.

3.2. Participants

Participants were recruited in three phases. In the first phase, at the beginning of the semester, an email was sent to 369 Saudi male and female EFL students registered for the

level one Reading Comprehension 1 (Eng109) course, with the cooperation of the Student Academic Affairs Office. The email included information about the research and required the voluntary candidates to answer demographic questions regarding their names, the number of times they had registered for the reading course, years of exposure to English, and scores on the Standardized Test of English Proficiency (STEP). In the second phase, candidates' responses were analyzed to exclude those who did not meet the selection criteria. The criteria were that participants should: (a) have registered for the reading course for the first time; (b) have been exposed to English for 10 to 13 years, depending on their first exposure to formal instruction in English (either in level one or four in primary school); (c) enjoy reading in English for at least thirty minutes weekly; (d) have scored no less than 64 and no more than 74 in STEP—which equals 4.5 to 5 in the International English Language Testing System (IELTS) and B1 in Common European Framework for Reference of Language (CEFR). The reason for such criteria was not only to recruit participants with common characteristics but also to prevent extraneous variables from distorting the results [36]. In the third phase, participants who met the criteria (42 male, 88 female) received another email asking them to choose their group type (i.e., control or experimental) and to complete a pretest (see Appendix A). Finally, the results of the initial analysis of the participants' pretest after being assigned to the group of their choice indicated that there were no significant differences within groups and genders and across groups and genders. Table 1 presents the results of the independent sample t-test for the difference between the groups and genders.

Table 1. Independent Sample t-test Results for the Differences between Groups and Genders in the Pretest.

Group		N	Mean	Standard Deviation	t	*p*-Value
Entire Sample	Control	75	10.85	5.816	0.215	0.830
	Experimental	55	10.64	5.472		
Male	Control	21	12.76	6.595	1.666	0.107
	Experimental	21	10.14	2.903		
Female	Control	54	10.11	5.368	−0.616	0.540
	Experimental	34	10.94	6.606		
Control	Male	21	12.76	6.595	1.642	0.111
	Female	54	10.11	5.368		
Experimental	Male	21	10.14	2.903	−0.615	0.541
	Female	34	10.94	6.606		

Figure 1 shows the results of the independent sample t-test for the difference between the groups and genders.

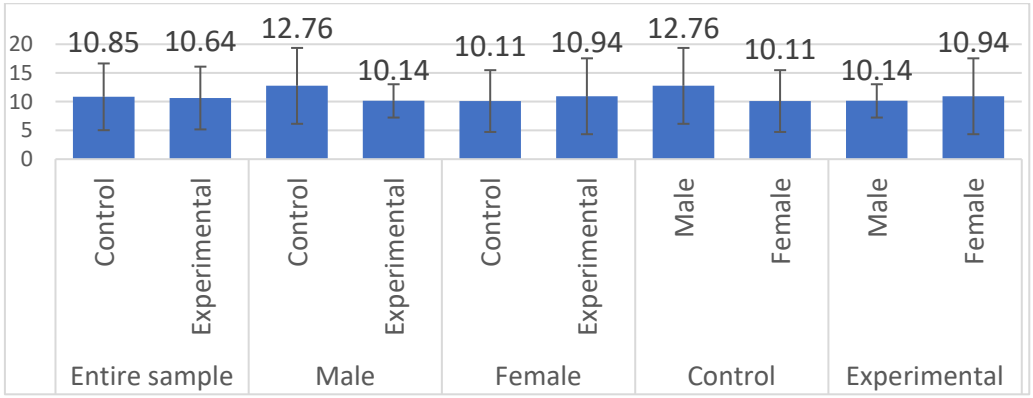

Figure 1. Mean Differences between Groups and Genders in the Pretest.

3.3. Teaching Approaches and Research Treatement

The teaching approaches incorporated for the reading courses in this research were executed through a collaboration between male and female colleagues and the researcher. Instructors who voluntarily agreed to participate in the research were debriefed about the research topic, requirements, teaching approaches, groups, websites/applications, and the duration of the experiment, as they would continue teaching the participants until they finished level two. Instructors were also assigned to their gender-based groups (i.e., control and experimental). Meanwhile, the researcher aided teaching and supervision of the experimental groups only.

To clarify, regardless of group type, all the learners underwent the same courses' textbook requirements, learning environments, tests, assignments, and activities, with one major difference being the incorporation of graded-reading websites/applications. For example, in the level one Reading Comprehension 1 (Eng109) course, all participants were required to undertake the first six chapters of the textbook *Reading Explorer 3* by Douglas and Bohlke [37], and, as they progressed academically to the second level, Reading Comprehension 2 (Eng115) course, they were required to study the last seven chapters from the same textbook. Although the specifications of these courses indicate that the assigned teaching environment was blended (i.e., traditional and virtual classrooms), the incorporation of said environment was only feasible in the first semester of the academic year. In the second semester, due to the COVID-19 pandemic, for all educational institutions in Saudi Arabia, classes were conducted online; students met their instructors virtually via electronic platforms, such as Blackboard.

The male and female control groups had a weekly two-hour reading class with their instructors, who relied heavily on the textbook(s) and could provide extra reading materials, websites, or applications that did not include graded-reading texts (i.e., one text presented at different levels of difficulty). Conversely, the male and female experimental groups had the same tasks as the control groups but had an additional weekly two-hour class with the researcher. In each of these additional classes, participants were first introduced to and subsequently instructed to use specific websites/applications that provided them with reading texts, each of which was presented at various levels of difficulty (i.e., a text could have three to seven versions of various difficulty levels). These websites/applications were News in Levels (available at https://www.newsinlevels.com/products/healthcare-workers-and-covid-19-vaccine-level-2/ (accessed on 5 February 2022)), Breaking News English (available at https://breakingnewsenglish.com/ (accessed on 27 February 2022)), and Tween Tribune (available at https://www.tweentribune.com/ (accessed on 5 March 2022)). In addition, the participants were required to use these websites/applications repetitively and retain a record of their reading progress for discussions conducted in a designated Telegram channel. The instructors raised reading questions in the Telegram group about a particular word, sentence, or idea in a specific text to encourage the students' participation. However, the additional classes, as well as the Telegram channel, were terminated at the end of the second semester, and the experimental groups were instructed to continue using the websites/applications until the end of the summer holidays.

Yet, as a monitoring tool and since the amount of exposure to written input is important for the successful treatment of reading approaches (Bamford & Day, 2004), all of these groups were required to fill in an online log of their readings. For control groups, the average amount of reading for the male participants outside class was 924 min (21 min $\times$ 44 weeks) and for the female participants it was 792 min (18 min $\times$ 44 weeks). For experimental groups, the male participants spent on average 1056 min (24 min $\times$ 44 weeks) whereas the female participants spent an average of 10,188 (27 min $\times$ 44 weeks) on reading outside class. All of these groups had an average of 1320 min (30 min $\times$ 44 weeks) in-class reading.

3.4. Instruments

The instruments used in this study were a pretest, posttest 1, posttest 2, and delayed posttest 3 (see Appendix A, for an example) all of which were adopted from the reading section in Cambridge's English proficiency test B1 Preliminary for Schools, previously known as PET: Cambridge English: Preliminary for Schools. The validity and reliability of this type of proficiency test has already been determined [38]. Even though this test was designed for school learners, rather than adults, it was chosen for the experiment for the following reasons. First, the reading section comprises various types of questions that Saudi EFL undergraduates are accustomed to. For example, the B1 reading section includes six parts: interpretation of signs, matching, multiple-choice, and filling in the blanks. Second, the level of the test is suitable for the participants' proficiency level because their equivalent score corresponds to the Common European Framework of Reference for Languages B1. Each of these tests was transferred into an electronic version using Google Forms and had to be completed within 45 min.

3.5. Data Collection

As all participants' email addresses had already been provided by the Student Academic Affairs Office, and we kept in touch with them regarding all educational aspects and, most importantly, regarding providing information about the time and links for the tests. As mentioned earlier, the pretest was conducted in the first week of the first semester. However, the other tests were conducted at different time points. For example, the first posttest was administered in the 16th week. The second posttest was administered in the 15th week of the second semester, while the third delayed posttest was administered in the first week of the third semester, which started after the summer holidays (i.e., after three months). To answer the research questions, various comparisons were made regarding each group and between genders based on the results of the four test groups. Two statistical tests (t-test and analysis of variance [ANOVA]) were used to analyze participants' test results and compare the results of the experimental and control groups. A repeated-measures ANOVA was performed five times to investigate the interaction effect between gender (male and female) and the groups (control and experimental). The validity of the yielded results was determined by a professional statistician.

4. Results

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics of all participants (n = 130, 42 males [32.3%], 88 females [67.7%]). The control group consisted of 75 participants (57.7%) and the experimental group consisted of 55 participants (42.3%). Male participants scored the highest (M = 18.95, SD = 5.996) in the experimental group on posttest 3 and the lowest (M = 9.67, SD = 6.319) in the control group on posttest 1 (Table 2).

Figure 2 displays descriptive statistics for all groups.

4.2. Testing the Differences between Paired Tests within the Control Groups

Table 3 presents the results of the paired samples t-test of the differences between paired tests within the control group (n = 75).

4.2.1. Results for All Control Groups (n = 75)

There was a statistically significant difference ($p < 0.05$) between pretest and posttest 1, in favor of posttest 1, which had the highest mean score (M = 15.40, SD = 8.062). Additionally, there was a statistically significant difference ($p < 0.05$) between posttest 2 and posttest 3, in favor of posttest 2, which had the highest mean score (M = 11.81, SD = 5.306).

4.2.2. Results for Male Participants (n = 21)

There was a statistically significant difference ($p < 0.05$) between pretest and posttest 2, in favor of posttest 2, which had the highest mean score (M = 16.19, SD = 4.739). Further,

there was a statistically significant difference ($p < 0.05$) between posttest 2 and posttest 3, in favor of posttest 2, which had the highest mean score (M = 16.19, *SD* = 4.739).

4.2.3. Results for Female Participants ($n = 54$)

There was a statistically significant difference ($p < 0.05$) between pretest and posttest 1, in favor of posttest 1, which had the highest mean score (M = 17.63, *SD* = 7.589).

Otherwise, there were no statistically significant differences in mean scores between other paired tests ($p > 0.05$) within the control group (Table 3).

Table 2. Descriptive Statistics for all Groups (N = 130).

Test	Group	Gender	N	Mean	Standard Deviation
Pretest	Control	Male	21	12.76	6.595
		Female	54	10.11	5.368
		Total	75	10.85	5.816
	Experimental	Male	21	10.14	2.903
		Female	34	10.38	5.954
		Total	55	10.29	4.980
Posttest 1	Control	Male	21	9.67	6.319
		Female	54	17.63	7.589
		Total	75	15.40	8.062
	Experimental	Male	21	10.86	4.016
		Female	34	13.91	5.600
		Total	55	12.75	5.232
Posttest 2	Control	Male	21	16.19	4.739
		Female	54	10.11	4.504
		Total	75	11.81	5.306
	Experimental	Male	21	15.43	5.390
		Female	34	13.32	5.639
		Total	55	14.13	5.591
Posttest 3	Control	Male	21	10.90	5.674
		Female	54	10.33	4.514
		Total	75	10.49	4.833
	Experimental	Male	21	18.95	5.996
		Female	34	12.38	3.516
		Total	55	14.89	5.590

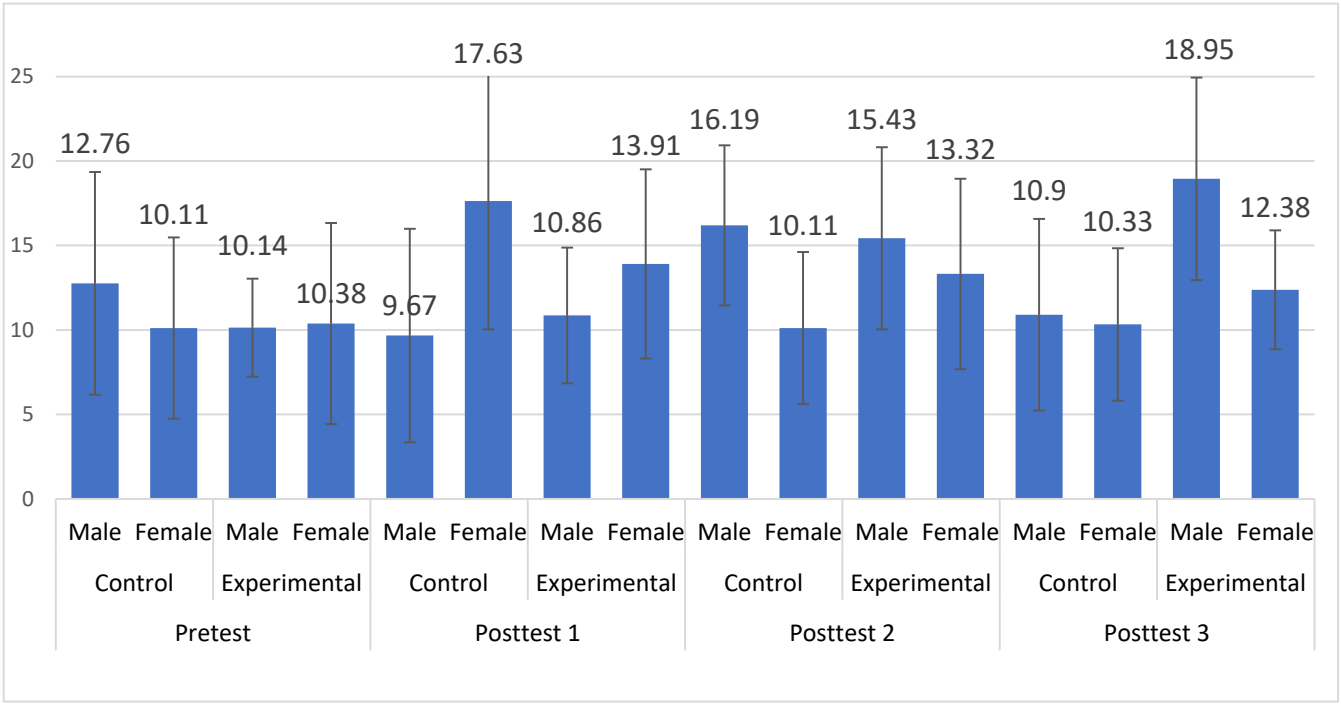

Figure 2. Descriptive Statistics for all Groups.

Table 3. Paired Samples t-test Results of the Differences between Paired Tests within the Control Groups.

	Paired Tests		Mean	Standard Deviation	t	*p*-Value
All control groups (n = 75)	Pair 1	Posttest 1 Pretest	15.40 10.85	8.062 5.816	3.874	0.000 **
	Pair 2	Posttest 2 Pretest	11.81 10.85	5.306 5.816	1.165	0.248
	Pair 3	Posttest 3 Pretest	10.49 10.85	4.833 5.816	−0.436	0.664
	Pair 4	Posttest 3 Posttest 2	10.49 11.81	4.833 5.306	−2.281	0.025 *
Male (n = 21)	Pair 1	Posttest 1 Pretest	9.67 12.76	6.319 6.595	−1.611	0.123
	Pair 2	Posttest 2 Pretest	16.19 12.76	4.739 6.595	2.095	0.049 *
	Pair 3	Posttest 3 Pretest	10.90 12.76	5.674 6.595	−1.190	0.248
	Pair 4	Posttest 3 Posttest 2	10.90 16.19	5.674 4.739	−3.177	0.005 **
Female (n = 54)	Pair 1	Posttest 1 Pretest	17.63 10.11	7.589 5.368	6.070	0.000 **
	Pair 2	Posttest 2 Pretest	10.11 10.11	4.504 5.368	0.000	1.000
	Pair 3	Posttest 3 Pretest	10.33 10.11	4.514 5.368	0.229	0.820
	Pair 4	Posttest 3 Posttest 2	10.33 10.11	4.514 4.504	0.772	0.444

Note: * Significant at 0.05; ** Significant at 0.01.

Figure 3 shows the mean differences between paired tests within the control groups.

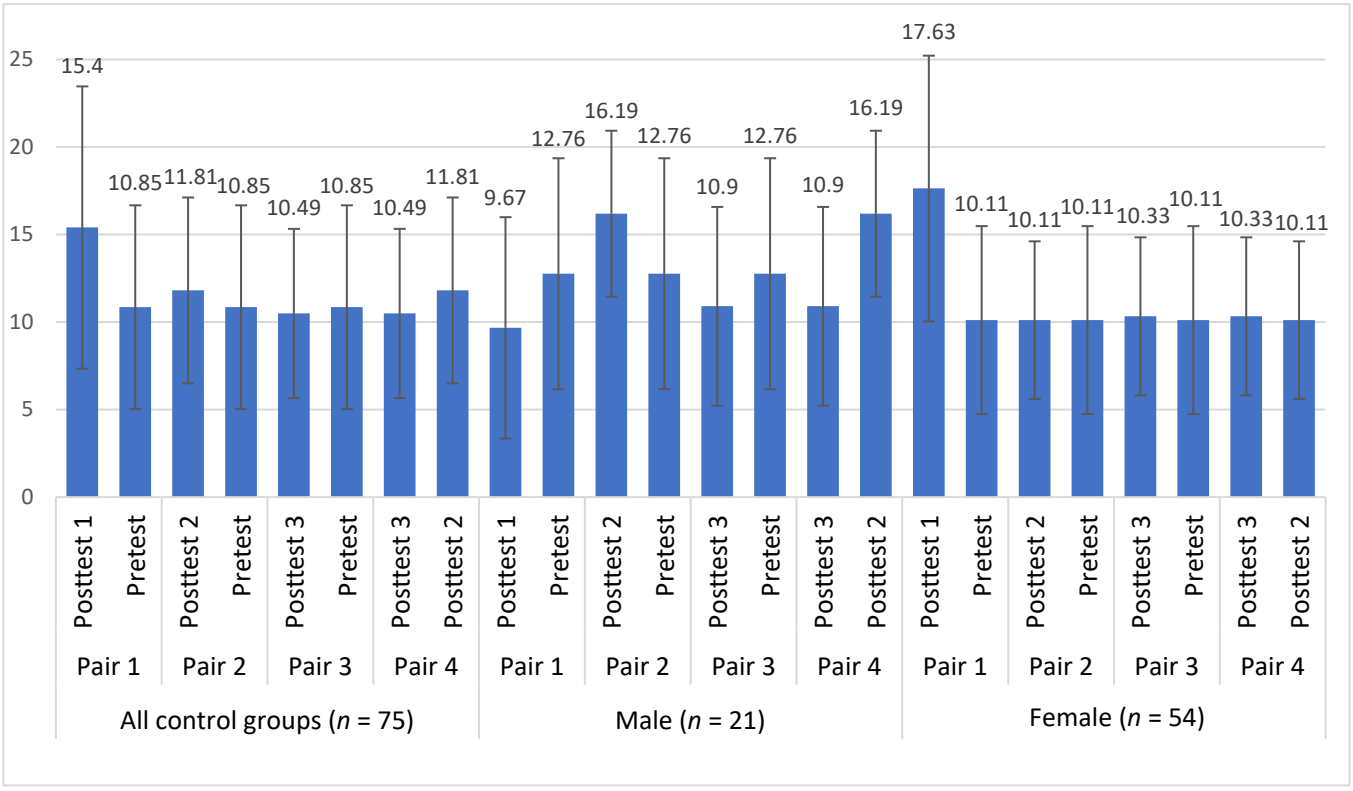

Figure 3. Mean Differences between Paired Tests within the Control Groups.

4.3. Testing the Differences between Paired Tests within the Experimental Group

Table 4 presents the results of the paired samples t-test for the differences between paired tests within the experimental group (n = 55).

Table 4. Paired Samples t-test Results for the Differences between Paired Tests within the Experimental Groups.

Group	Paired Tests		Mean	Standard Deviation	t	*p*-Value
All experimental groups (n = 55)	Pair 1	Posttest 1 Pretest	12.75 10.29	5.232 4.980	2.804	0.007 **
	Pair 2	Posttest 2 Pretest	14.13 10.29	5.591 4.980	4.848	0.000 **
	Pair 3	Posttest 3 Pretest	14.89 10.29	5.590 4.980	4.648	0.000 **
	Pair 4	Posttest 3 Posttest 2	14.89 14.13	5.590 5.591	0.885	0.380
Experimental groups (Male) (n = 21)	Pair 1	Posttest 1 Pretest	10.86 10.14	4.016 2.903	0.944	0.356
	Pair 2	Posttest 2 Pretest	15.43 10.14	5.390 2.903	4.165	0.000 **
	Pair 3	Posttest 3 Pretest	18.95 10.14	5.996 2.903	5.729	0.000 **
	Pair 4	Posttest 3 Posttest 2	18.95 15.43	5.996 5.390	2.580	0.018 *
Experimental groups (Female) (n = 34)	Pair 1	Posttest 1 Pretest	13.91 10.38	5.600 5.954	2.689	0.011 *
	Pair 2	Posttest 2 Pretest	13.32 10.38	5.639 5.954	2.955	0.006 **
	Pair 3	Posttest 3 Pretest	12.38 10.38	3.516 5.954	1.848	0.074
	Pair 4	Posttest 3 Posttest 2	12.38 13.32	3.516 5.639	−0.923	0.363

Note: * Significant at 0.05; ** Significant at 0.01.

4.3.1. For All Experimental Groups (n = 55)

There was a statistically significant difference ($p < 0.05$) between the pretest and posttest 1, in favor of posttest 1, which had the highest mean score (M = 12.75, SD = 5.232). Additionally, there was a statistically significant difference ($p < 0.05$) between the pretest and posttest 2, in favor of posttest 2, which had the highest mean score (M = 14.13, SD = 5.591). There was also a statistically significant difference ($p < 0.05$) between the pretest and posttest 3, in favor of posttest 3, which had the highest mean score (M = 14.89, SD = 5.590). There was no statistically significant difference ($p > 0.05$) between posttest 2 and posttest 3.

4.3.2. For Male Participants (n = 21)

There was no statistically significant difference ($p > 0.05$) between the pretest and posttest 1. There was a statistically significant difference ($p < 0.05$) between the pretest and posttest 2, in favor of posttest 2, which had the highest mean score (M = 15.43, SD = 0.390). Further, there was a statistically significant difference ($p < 0.05$) between the pretest and posttest 3, in favor of posttest 3, which had the highest mean score (M = 18.95, SD = 5.996). There was also a statistically significant difference ($p < 0.05$) between posttest 2 and posttest 3, in favor of posttest 3, which had the highest mean score (M = 18.95, SD = 5.996).

4.3.3. For Female Participants (n = 34)

There was a statistically significant difference ($p < 0.05$) between the pretest and posttest 1, in favor of posttest 1, which had the highest mean score (M = 13.91, SD = 5.600). Additionally, there was a statistically significant difference ($p < 0.05$) between the pretest and posttest 2, in favor of posttest 2, which had the highest mean score (M = 13.32, SD = 5.639). There was no statistically significant difference ($p > 0.05$) between the pretest and posttest 3.

There was also no statistically significant difference ($p > 0.05$) between the pretest, posttest 2, and posttest 3.

There was no significant difference in the mean score between some paired tests within the experimental group ($p > 0.05$) because of small differences (Table 4).

Figure 4 displays the mean difference between paired tests within the experimental groups.

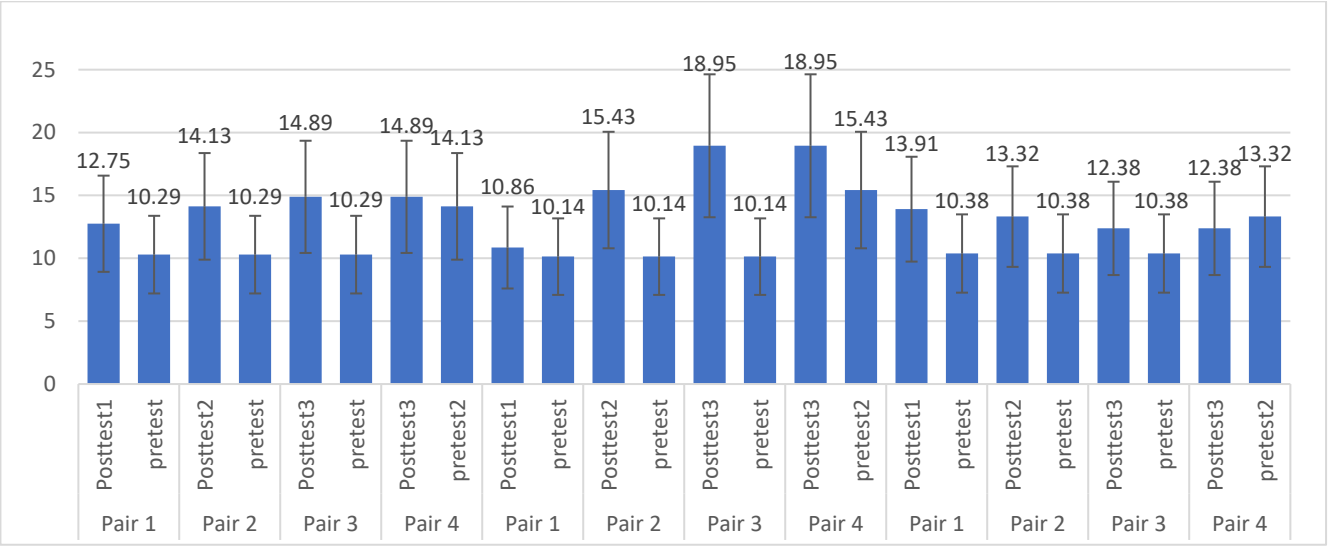

Figure 4. Mean Differences between Paired Tests within the Experimental Groups.

4.4. One-Way ANOVA

To investigate the difference in scores between groups according to the test (pretest, posttest 1, posttest 2, and posttest 3), one-way ANOVA tests were performed five times (all groups, male control group, female control group, male experimental group, and female experimental group). The results indicated that there were statistically significant differences between all groups ($p < 0.05$) (Table 5).

Table 5. ANOVA Results for the Differences between all Tests within all Groups.

	Test	N	Mean	Standard Deviation	F	*p*-Value
All groups (n = 130)	Pretest	130	10.62	5.465	8.311	0.000 **
	Posttest 1	130	14.28	7.105		
	Posttest 2	130	12.79	5.528		
	Posttest 3	130	12.35	5.589		
Male control group (n = 21)	Pretest	21	12.76	6.595	4.908	0.004 **
	Posttest 1	21	9.67	6.319		
	Posttest 2	21	16.19	4.739		
	Posttest 3	21	10.90	5.674		
Female control group (n = 21)	Pretest	54	10.11	5.368	23.568	0.000 **
	Posttest 1	54	17.63	7.589		
	Posttest 2	54	10.11	4.504		
	Posttest 3	54	10.33	4.514		
Male experimental group (n = 21)	Pretest	21	10.14	2.903	16.015	0.000 **
	Posttest 1	21	10.86	4.016		
	Posttest 2	21	15.43	5.390		
	Posttest 3	21	18.95	5.996		
Female experimental group (n = 21)	Pretest	34	10.38	5.954	2.929	0.036 *
	Posttest 1	34	13.91	5.600		
	Posttest 2	34	13.32	5.639		
	Posttest 3	34	12.38	3.516		

Note: * Significant at 0.05; ** Significant at 0.01.

Figure 5 shows the mean difference between all tests within all groups.

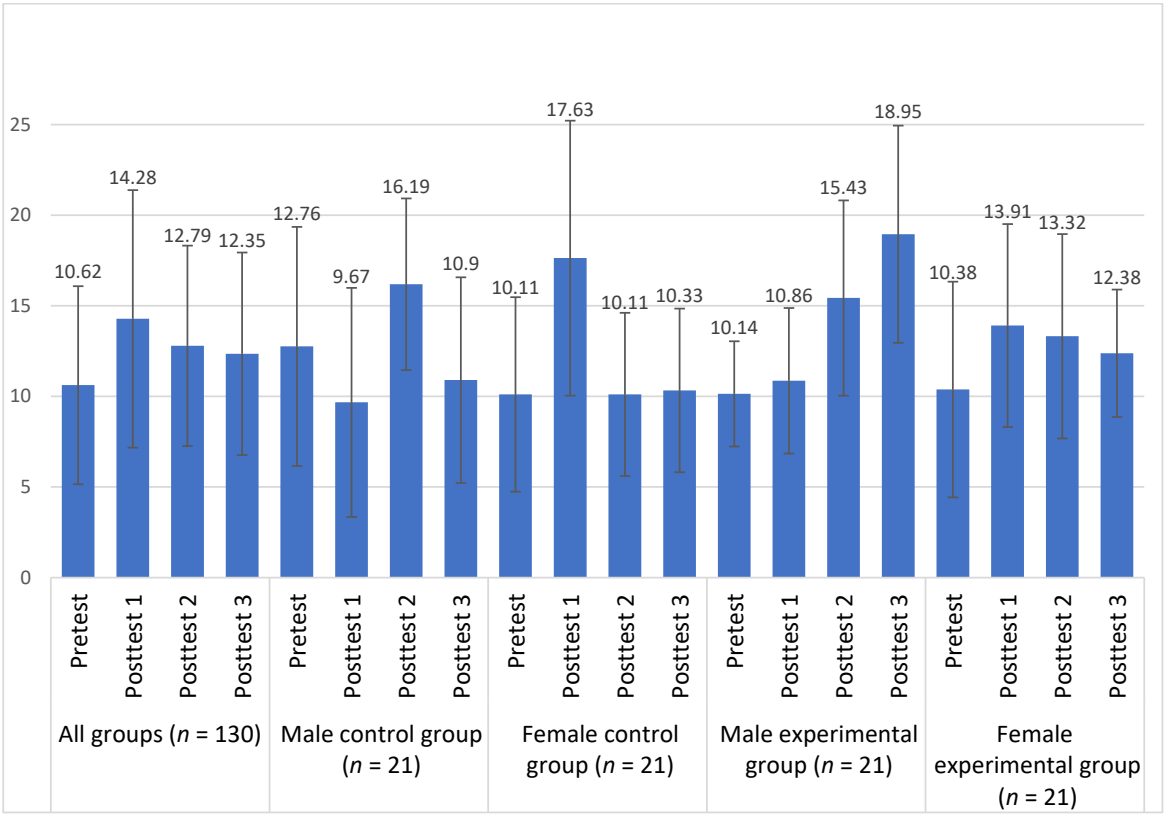

Figure 5. Mean Differences between all Tests within all Groups.

4.5. Repeated Measures ANOVA

To investigate the interaction effect between gender (male and female) and groups (control and experimental), repeated-measure ANOVA was performed five times. The results indicated that between the four tests (pretest, posttest 1, posttest 2, and posttest 3), there was no interaction effect between gender and groups ($p = 0.375$). However, for three tests (pretest, posttest 1, and posttest 3), there was a significant interaction effect between gender and groups ($p = 0.029$) (Table 6).

Table 6. Results of Inter-Subject Effects from Repeated-Measures ANOVA.

Test	Source	Type III Sum of Squares	df	Mean Square	F	Significance	Partial Eta Squared
Pre-Post1-Post2-Post3	Intercept	72,022.759	1	72,022.759	1998.172	0.000	0.941
	Group	102.779	1	102.779	2.851	0.094	0.022
	Gender	78.845	1	78.845	2.187	0.142	0.017
	Group * Gender	28.534	1	28.534	0.792	0.375	0.006
	Error	4541.585	126	36.044			
Post1-Post2-Post3	Intercept	59,374.018	1	59,374.018	1947.305	0.000	0.939
	Group	233.747	1	233.747	7.666	0.006 **	0.057
	Gender	43.215	1	43.215	1.417	0.236	0.011
	Group * Gender	111.899	1	111.899	3.670	0.058	0.028
	Error	3841.784	126	30.490			
Pre-Post1-Post2	Intercept	52,747.688	1	52,747.688	1460.819	0.000	0.921
	Group	13.688	1	13.688	0.379	0.539	0.003
	Gender	0.414	1	0.414	0.011	0.915	0.000
	Group * Gender	8.910	1	8.910	0.247	0.620	0.002
	Error	4549.646	126	36.108			
Pre-Post2-Post3	Intercept	53,104.075	1	53,104.075	1387.058	0.000	0.917
	Group	242.201	1	242.201	6.326	0.013 *	0.048
	Gender	732.487	1	732.487	19.132	0.000 **	0.132
	Group * Gender	1.746	1	1.746	0.046	0.831	0.000
	Error	4823.959	126	38.285			
Pre-Post1-Post3	Intercept	51,023.218	1	51,023.218	1657.400	0.000	0.929
	Group	63.476	1	63.476	2.062	0.153	0.016
	Gender	4.996	1	4.996	0.162	0.688	0.001
	Group * Gender	149.630	1	149.630	4.860	0.029 *	0.037
	Error	3878.921	126	30.785			

Note: * Significant at 0.05; ** Significant at 0.01.

Figure 6 displays partial eta squared for effects of the interaction between group and gender.

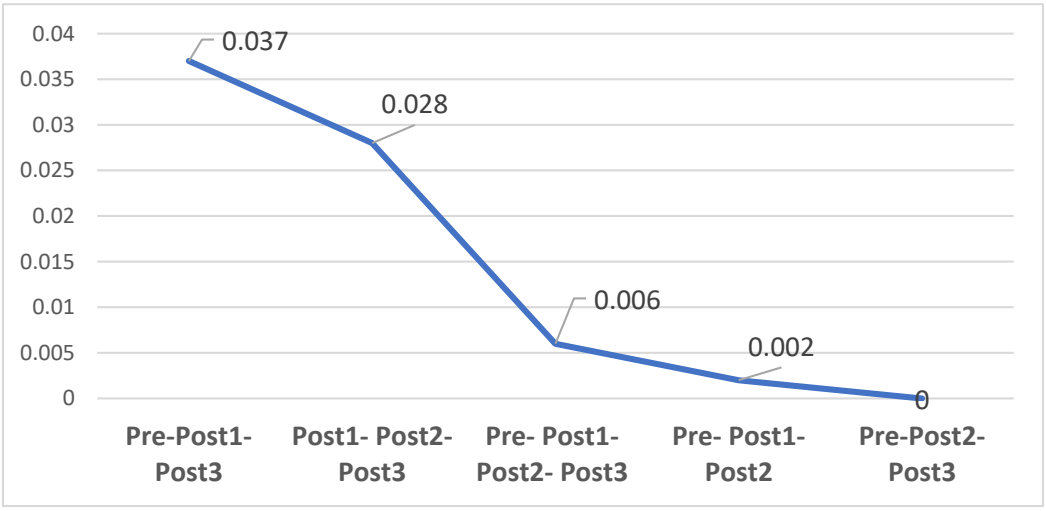

Figure 6. Partial Eta Squared for Effects of the Interaction between Group and Gender.

5. Discussion

Regarding the first research question, which was to determine whether there were any significant differences within the control group participants' tests (i.e., pretest, first posttest 1, posttest 2, and posttest 3), and within the tests for male and female participants, the results indicated the following. There was a significant difference between the control group's pretest and the first posttest, in favor of the first posttest, and there was a significant difference between the second posttest and delayed posttest, in favor of the second posttest. These results imply that although the reading comprehension of the control group participants had temporarily increased significantly, such an increase was not gradual. Moreover, their reading comprehension decreased significantly in the long term. In addition, the results of the male control group indicated similar results with the exception that the significant increase was in the second posttest compared to the pretest, which occurred after the application of the online learning environment. In contrast, the results of the female control group revealed that there was a significant increase in the first posttest in comparison to the pretest, which occurred at the end of the application of the blended learning environment. The results of the male and female control groups imply that each of the learning environments could lead to temporary positive effects on their reading comprehension depending on the gender, and such an effect could become negative in the long term, as for the male control group. The results are aligned with other researchers who advocate that discovering new technologies may improve literacy and reading comprehension skills for EFL learners [31].

Concerning the second research question, which questions whether there were any significant differences within all experimental group participants' tests (i.e., pretest, first posttest, second posttest, and delayed posttest) and the tests of each gender, the results indicated the following. There were significant differences between the experimental group's pretest and first posttest, second posttest, and delayed posttest, which were in favor of the latter three posttests. Thus, the reading comprehension of the experimental group participants had gradually and longitudinally increased significantly, which could be a result of the incorporation of the graded-reading text website/applications. These results were largely similar to those of the male experimental group, in that they showed gradual and longitudinal significant increments starting from the second posttest, which was after the application of the online learning environment, and to the delayed posttest, which was after relying solely on the graded-reading text websites/applications. The reason for the male experimental group not scoring significantly higher in their first

posttest and after the application of the blended learning could be that they required more time to adjust as they might always have used technology for gaming only. Thus, it might have taken them time to adjust to utilize their potential capabilities—especially those used for learning purposes—to increase their reading comprehension abilities. In addition, the results of the male experimental group could imply that relying solely on the graded-text websites/applications after using it within the imposed learning environments aided such participants in maintaining their gradual skill increase in the long term. In contrast, the results of the female experimental group indicated that they had gradually significant increases starting from the first posttest, which was after the application of the blended learning environment, and subsequently the second posttest, which was after the application of the online learning environment. However, no significant differences were identified between the delayed posttest, which was after relying solely on graded-reading websites/applications, and the pretest or the second posttest. The justification for such results is that the female experimental group required formal instructional environments such as blended learning and online learning to benefit from the graded-reading websites/applications. The female experimental group demonstrated a lack of commitment during the summer. This was clear from the researchers' follow-ups with the students through the Telegram group. When the researchers contacted the participants regarding using the graded-reading websites/applications, the female experimental group did not attend all the sessions designed to meet with the researchers during the summer; therefore, their results could have been affected.

The third research question was aimed at determining which group outperformed the other, in general, and based on gender. The results indicated that although the control group outperformed the experimental group in the first posttest, the latter outperformed the former in all the other posttests (i.e., second posttest and delayed posttest). Likewise, the male control group outperformed the male experimental group only in the second posttest, while the latter performed better than the former in the first and delayed posttests. In addition, the female control group outperformed the female experimental group in the first posttest, whereas the latter performed better than the former in the second and delayed posttest.

Based on the results of this study, the effect of technology on the reading comprehension of Saudi male and female undergraduates is bound by the type of specialized technology (i.e., reading websites/applications) and the applied learning environments (i.e., blended and online). The use of the blended learning environment for all the participants of the control groups was the only environment that yielded a temporary significant increase in their reading comprehension; once such an environment was no longer available with the online learning facilities, the reading abilities decreased in the long term. The short-term significant increase in the male control group's reading comprehension could be a result of the online environment, whereas the long-term significant decrease in their reading ability could be attributed to the cessation of the learning environment. The reading comprehension of the female control group significantly increased in the short term as a possible consequence of the blended learning environment, but their reading abilities remained unchanged in the short-term while being exposed to the online learning environment and in the long term after the learning environment had stopped. Conversely, the reading comprehension of the participants of the experimental group continuously increased significantly (i.e., from the short term to the long term), even after the two imposed learning environments (i.e., blended or online) had ended, which could be the result of combining the learning environments (i.e., either the blended or the online) with the graded-reading websites/applications. These results remained relatively true for the male experimental group, in which participants' reading comprehension increased significantly in the short term after applying the online learning environment with the graded-reading websites/applications, and it continued to increase in the long term when relying on only the latter type of reading-related technology. Meanwhile, the female experimental group's reading comprehension gradually increased significantly in the short term after combin-

ing either the blended learning environment or the online one with the graded-reading websites/applications. However, their reading remained unchanged in the long term after relying only on the graded-reading websites/applications.

In other words, the fact that the four gender-based groups started the experiment with the same reading comprehension level and were exposed to the same kind of learning environment (blended and online) provides solid evidence for attributing the results of the experimental group to the use of the graded-reading websites/applications. This view is supported by many studies that advocate the role of using skill-related technology in developing reading comprehension skills, stressing the importance of technology as a powerful intervention that promises to deliver valuable help to EFL learners) [39–44].

Digital scaffolding, as used in this study, provides proof that exposing students to texts with different levels of difficulty using technology is a legitimate source of language input. The improvement in the experimental group in the general posttest scores provides conclusive evidence for its role in improving students' reading comprehension abilities. This is in line with the studies conducted to examine the effectiveness of using technology for improving language for EFL learners [1–4,15–19]. This has revealed a powerful positive effect of using technology to support students which is supported by earlier research [40–42]. The technology used gave students in the experimental group the boost they needed to score better on their comprehension assessments. By doing so, students built their background knowledge of the texts by having access to the Internet and reading various texts of different levels. Singer and Alexander [45] confirmed that adult students preferred to read digital texts and performed better on exams involving these texts.

Finally, this study raised different issues regarding the development of EFL reading comprehension abilities. First, using reading-specialized websites/applications provided students with different ways of understanding texts with different levels of difficulty. Hence, each student was influenced by many factors (such as using the Internet) in English reading comprehension learning. Gradual progress in reading skills with intensive exposure to various texts has proven to be an effective way of improving reading skills [32]. Second, if students are willing to learn, and if they are motivated using technology, they are given optimal opportunities for language learning to enhance their reading comprehension competencies. Thus, a learning environment accompanied by technology has created abundant resources and opportunities for language learners. Third, although many studies have been conducted on the role and importance of technology in improving reading comprehension, few studies have provided empirical data on the effective implementation of technology in the EFL field. Fourth, using the appropriate technology type, suitable teaching and reading strategies, and effective teaching methods for EFL, learners are variables that contribute to developing reading comprehension skills [2–4]. The results confirm that previous research conducted during the COVID-19 pandemic and the impact of the use of technology in education for better learning [39–45].

6. Conclusions

The purpose of this study was to explore the extent to which learning environments (i.e., blended and online) affect the reading comprehension of Saudi male and female EFL undergraduates with or without reading skill-related technology (i.e., websites/applications of graded-reading texts). All four control and experimental gender-based groups were exposed to the same learning environments; however, only the experimental groups (i.e., male and female) constantly used graded-reading websites/applications. The results of this study suggest that the learning environments alone had a limited positive effect on the reading comprehension of the male and female control groups, whereas the learning environments with the graded-reading websites/application led to gradual increases in the reading comprehension abilities of male and female experimental groups that lasted for the male group even when relying only on the said technology.

The results of this study suggest that the learning environments alone had a limited positive effect on the reading comprehension of the male and female control groups,

whereas the learning environments with the graded-reading websites/application led to gradual increases in the reading comprehension abilities of male and female experimental groups that lasted for the male group even when relying only on the said technology. Specifically, the results showed that for all control groups, blended learning environment led to a significant increase in their reading comprehension as indicated by the comparison between their pretest (M = 10.85) and first posttest (M = 15.40; $p < 0.000$). However, no effect was found when applying the online environment. In a matter of fact, the control groups' reading comprehension decreased significantly after not receiving any instruction in any learning environment: second posttest (M = 11.81) and delayed posttest (M = 10.49; $p < 0.025$). Likewise, the male control group's reading comprehension increased significantly only when applying the online learning environment: pretest (M = 12.76) and second posttest (M = 16.19; $p < 0.049$). On the other hand, their reading comprehension decreased significantly in the long term after receiving no instruction in any learning environment as shown in the comparison between the second posttest (M = 16.19) and the delayed posttest (M = 10.90; $p < 0.005$). On the contrary, the reading comprehension of the female control group only increased significantly as a result of applying the blended learning environment: pretest (M = 10.11) and the first posttest (M = 17.63; $p < 0.000$). For all experimental groups, the combination of the learning environments (i.e., blended and online) with the graded-reading websites/application led to continuous gradual significant increases in their reading comprehension as revealed by the comparisons drawn between their pretest (M = 10.29), first posttest (M = 12.75), second posttest (M = 14.13), and delayed posttest (M = 14.89). The p values were: <0.007, 0.000, and 0.000, respectively. However, the reading comprehension of the male experimental group increased significantly after only applying the online environment with the graded-reading websites/application or only the latter: comparisons between the pretest (M = 10.14) second posttest (M = 15.43) and delayed posttest (M = 18.95) in favor of posttests ($p < 0.000$ and 0.000, respectively), and between second posttest (M = 15.43) and delayed posttest (M = 18.95), in favor of the delayed posttest ($p < 0.018$). In addition, the reading comprehension of the female experimental group increased significantly only when applying the blended and online learning environments in combination with the graded-reading websites/applications: pretest (M = 10.38), first posttest (13.91), and second posttest (M = 13.32), in favor of the posttests ($p < 0.011$ and 0.006, respectively). Finally, there were significant differences between all control groups and experimental groups across all tests ($p < 0.000$). However, the experimental male group outperformed their male counterparts across all posttests, except for the second posttest: the experimental male group mean was 15.43, whereas it was 16.19 for the control male group. Similarly, the female control group outperformed the experimental female group in only the first posttest (Means = 17.63 and 13.91, respectively).

Based on the results of this study, the effect of technology on the reading comprehension of Saudi male and female undergraduates is bound by the type of specialized technology (i.e., reading websites/applications) and the applied learning environments (i.e., blended and online). The application of the blended learning environment on all the participants of the control groups was the only environment that yielded a temporary significant increase in their reading comprehension. The study contributes to ongoing research on the use of reading website in EFL context, especially in Saudi context where English is used as a foreign language. In turn, this study in websites/application usage systems in Saudi universities can offer some effective solutions for online/distance learning during the COVID-19 pandemic. Finally, the study indicated that there is a need to investigate other important factors related to technology used in Saudi institutes, as well as their effects on students' learning process in ongoing changes in education sector in Saudi Arabia.

7. Limitations and Recommendations for Future Research

Although this is the first study to investigate this topic and the related variables in general and in Saudi Arabia in particular, it is susceptible to some limitations. These limitations are somehow connected: the number of participants, their proficiency level, learning envi-

ronments, test type, graded-reading application/websites, and duration of the application. To verify the results, future researchers are recommended to longitudinally (over years) address the above-mentioned results by tracing the reading skill abilities of many low, intermediate, and advanced proficiency Saudi EFL undergraduates. These participants should ideally represent different universities and be exposed to different learning environments (traditional, blended, and online), in which various reading-focused websites/applications (such Oxford graded literature) are applied, using various reading-related tests. By generating accumulative research, it would be possible not only to generalize the results of this study but also to know what, where, when, how long, and for whom a particular type of reading-related technology should be used.

8. Pedagogical Implications

Despite incorporating two learning environments (i.e., blended and online), in which technology is the essence of their execution, the comparisons drawn between the groups exposed to the same unconventional environments have indicated that purposeful technological-learning websites/applications could lead to better performance and possibly a gradual development in reading skills. In other words, the only difference between the instructions of the groups in each learning environment relies on demanding the consistent use of graded-reading texts for one of the groups, which resulted in a significant improvement in the participants' reading abilities. However, there are other implications as well. The reading abilities of participants in the male experimental group started to significantly develop at the end of the second semester, in which the online environment was used, and continued to do so months after the learning environment was terminated. This could imply that participants who are accustomed to playing video games required more time to adjust their understanding of the possible useful effect of technology on their reading abilities. Meanwhile, the female experimental group started to develop reading abilities in the first and second semesters (blended and online learning environment), which ceased during the summer holidays even though they continued to use the graded-reading text websites/applications. This could imply that such technological reading aids would help female participants only if they are accompanied by institutional learning environments.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Official approval was obtained from the college dean's office. Participants consented to participation and were given the option to withdraw at any time.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Reading Skill Pretest

Name:
Group:
Time: 45 min
Instructions to Participants
Do not open this question paper until you are told to do so.
Write your name and Group on this first paper sheet.
Read the instructions for each part of the paper carefully.
Answer all the questions here and not on a separate paper. Use a pen.
You **must** complete your answers within the time limit.
INFORMATION FOR CANDIDATES

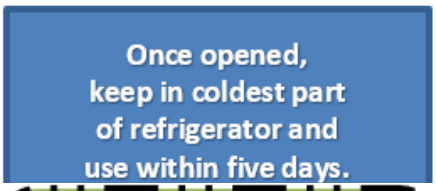
Questions **1–32** carry one mark.

Part 1

Questions 1–5.

For each question, choose the correct answer.

1.

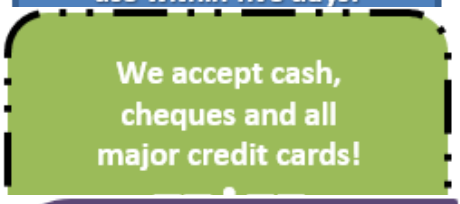


(A) The product can last five days after opening.

(B) The product should be stored in a refrigerator immediately.

(C) The product doesn't have to be kept cool.

2.

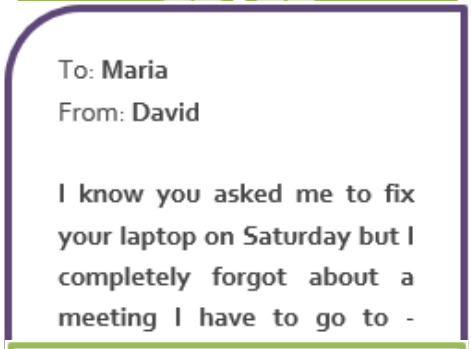


(A) We prefer you to pay with a credit card or in cash.

(B) You must have a credit card and a cheque as well as cash.

(C) You may pay with a credit card, cheque or in cash.

3.



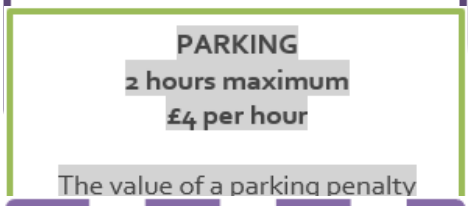
Why is David apologising to Maria?

(A) He cannot do the favour he had promised.

(B) He hasn't had time to fix her laptop.

(C) He won't be able to go to the meeting with her.

4.

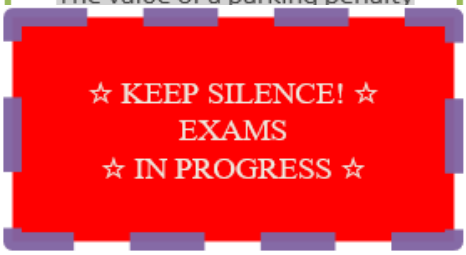


(A) It costs at least £50 to park here for two hours.

(B) There are no parking charges after 2.00 pm.

(C) You have to pay a fine if you park here for three hours.

5.



(A) You mustn't speak during the examination.

(B) Please respect others and remain quiet during the examination.

(C) Do not talk to the teacher.

Part 2

Questions 6–10.

For each question, choose the correct answer.

The young people below all want to do a cycling course during their school holidays.

On the opposite page there are descriptions of eight cycling courses.

Decide which course would be the most suitable for the people below.

6 Nancy is fourteen and cycles quite well. She needs to learn how to cycle safely from her home to school on busy city roads. She's only free at the weekends.

7 Markus is an excellent cyclist and he wants the excitement of riding on countryside and woodland tracks. He'd also like to learn more about looking after his bke. He can't attend a morning course.

8 Ellie is nine and knows how to ride her bike, but isn't confident about starting and stopping. She'd love to meet other cyclists with a similar ability and have fun with them.

9 Leo can't cycle yet, and wants to learn on his own with the teacher. He'd prefer a course with sessions twice a week. He'd also like some practical information about cycling clothes and equipment.

10 Josh is eleven and a skilled cyclist. He's keen to learn to do exciting cycling tricks in a safe environment. He'd like to be with people of a similar age.

Cycling Courses

(A) **Two Wheels Good!**
Mountains! Rivers! Forests!
Our 'off-road' course offers you the chance to get out of the city. You'll need very good cycling skills and confidence. You will be with others of the same ability. Expert advice on keeping your bike in good condition also included.
Mondays 2.00–6.00 p.m. or Fridays 3.00–7.00 p.m.

(B) **On Your Bike!**
Can't ride a bike yet, but really want to? Don't worry. Our beginners-only group (4–10 pupils per group) is just what you're looking for. Excellent teaching in safe surroundings. Makes learning to cycle fun, exciting and easy.
Mondays 9.00–11.00 a.m. and Thursdays 2.00–4.00 p.m.

(C) **Fun and Games**
Do you want some adventure? Find out how to do 'wheelies' (riding on one wheel), 'rampers' (cycling off low walls), 'spins' and much more... We offer a secure practice ground, excellent trainers and loads of fun equipment. Wear suitable clothes. Only for advanced cyclists.
(Age 11–12) Saturdays 1.00–4.00 p.m.

(D) **Pedal Power**
A course for able cyclists. We specialise in teaching riders of all ages how to manage difficult situations in heavy traffic in towns and cities. We guarantee that by the end of the course, no roundabout or crossroads will worry you!
Saturdays 2.00–4.00 p.m.

(E) **Cycling 4U**
Not a beginner, but need plenty of practice? This course offers practical help with the basics of balancing and using your brakes safely. You'll be in a group of pupils of the same level. Improve your cycling skills and enjoy yourself at the same time! Open to all children up to the age of ten.
Sundays 10.00 a.m.–12.00 p.m.

(F) **Bike Doctors**
Have you been doing too many tricks on your bike? Taken it up mountains and through rivers? Then it probably needs some tender loving care. Bike Doctors teach you to maintain and repair your bike. (Some basic equipment required.) Ages 11–19
Tuesdays 9.00 a.m.–12.00 p.m. or Wednesdays 3.00–6.00 p.m.

(G) **Safety First**
We teach cycling safety for the city centre and country lane biker. We'll teach you the skills you need to deal with all the vehicles using our busy roads. All ages welcome from 10+. Thursdays 9.00–11.00 a.m.

(H) **Setting Out**
A course for absolute beginners needing one-to-one instruction to get off to a perfect start. We also give advice on helmets, lights, what to wear and much more. A fantastic introduction to cycling! Mondays and Tuesdays 9.00–11.00 a.m.

Part 3

Questions 11–15.

For each question, choose the correct answer.

Jacques Cousteau: A Remarkable Man

Jacques-Yves Cousteau was an explorer, ecologist, filmmaker, inventor and conservationist. He was a man, who spent nearly his whole life underwater exploring the hidden depths of the ocean and who did more to educate the world about the mysteries of the deep sea than any other scientist before or since. He was born in June, 1910 in the village of Saint-André-de-Cubzac, in south western France. Jacques was a sickly boy and spent much of his time in bed, reading books and dreaming about a life at sea. In 1920, Jacques' family moved to New York and he was encouraged to start swimming to build up his strength. This was the beginning of his fascination with water and the more he learnt through his own experiences, the more passionate he became about "looking through nature's keyhole". Nevertheless, his career in underwater exploration came about by accident. After entering France's naval academy and travelling around the world, he was involved in an almost fatal car accident that left him seriously injured with two broken arms. He began swimming in the Mediterranean Sea to strengthen his arm muscles as part of his recovery process and rediscovered his love of the ocean. Cousteau developed a pair of underwater breathing apparatus to allow him to stay underwater for long periods of time. His experiments led to the development of the first Aqua-Lung which was a great commercial success. During World War II, he worked for the French Resistance and experimented with underwater photographic equipment. He helped to get rid of German mines and was awarded the Legion D'Honneur and the Croix de Guerre medals for his bravery. In 1942, he filmed his first underwater film Sixty Feet Down. It was 18 min long and was entered in the Cannes Film Festival.

(11) What is the writer trying to do in the text?

Top of Form

(A) teach readers how to make films
(B) explain how Jacques-Yves Cousteau has made a lot of money
(C) introduce readers to the filmmaker Jacques-Yves Cousteau
(D) describe particular films directed by Jacques CousteauBottom of Form

(12) Being a child, Cousteau had....

Top of Form

(A) strong will
(B) bright mind
(C) heart attacks

(D) delicate health

(13) In a car accident he...
Top of Form

(A) burnt both of his arm
(B) broke his extremities
(C) injured his leg
(D) hurt his eyesBottom of Form

(14) Cousteau developed underwater breathing equipment
Top of Form

(A) to extend his underwater investigations
(B) to gain fame
(C) to achieve commercial success
(D) having no certain goalsBottom of Form

(15) During World War II Cousteau collaborated with . . .
Top of Form

(A) Polish resistance movement
(B) German antifascists
(C) American troops
(D) underground resistance fighters in France

Part 4
Questions 16–20
Five sentences have been removed from the text below.
For each question, choose the correct answer.
There are three extra sentences which you do not need to use.

Antarctica

Antarctica is the coldest, emptiest and driest place on Earth. Ninety-nine percent of Antarctica is covered by ice about 5 metres thick. The coldest temperature ever recorded on Earth was minus 89.2 degrees Celsius, registered on 21 July 1983, at Antarctica's Vostok station. Antarctica's climate is also very dry and windy. **[16:** **]** There is an area called Dry Valleys that has not had rain for more than a million years!
The existence of Antarctica was completely unknown until the continent was first discovered in 1820. Antarctica doesn't have a government and belongs to no country. **[17:** **]** There are 30 various countries that operate 80 research stations located around the continent. In summer, more than 4000 scientists from all over the world work in research stations. Tourists arrive here, too. **[18:** **]**.
Antarctica has no trees or bushes. The only plants that can live in a place that cold are algae, moss and fungi. **[19:** **]** They live close together in large colonies and build their nests on the ice. In the ocean around the continent you can see seals, whales and orcas but there are no big and large native land animals on the continent. **[20:** **]**.

(A) More than 56,000 people travelled to Antarctica during the 2018–2019 season.

(B) Also hiding under the Antarctic ice is an entire lake called Lake Vostok.

(C) But there are a lot of penguins.

(D) Winds in some places of the continent can reach 320 km/h.

(E) But Antarctica hasn't always been an icy land.

(F) It's just too cold!

(G) The Antarctic is land surrounded by ocean.

(H) It is the only region in the world which is not ruled by any nation.

Part 5
Questions 21–26
For each question, choose the correct answer.

London Parks

London is famous **(21)** ..... its parks and gardens. Some of them belong to the Crown but they are all open to the public and the entrance is free of charge. In St James's Park you can watch and **(22)** ..... swans, ducks, geese and other water birds. Hyde Park **(23)** ..... to be a hunting ground and is still popular with horse riders.
Those who like a good argument should go to the Speakers' Corner to listen to individuals **(24)** ..... their speeches on various subjects. Regent's Park now houses London Zoo and open-air theatre where Shakespeare's plays are staged in summer. Not **(25)** ..... the parks are in the city centre. Greenwich and Richmond are located in the suburbs. All these areas of green give the city dwellers an excellent **(26)**..... to enjoy some peace and quiet away from traffic and crowded streets.

21	**(A)**	by	**(B)**	for	**(C)**	from	**(D)**	with
22	**(A)**	feed	**(B)**	eat	**(C)**	breed	**(D)**	lead
23	**(A)**	should	**(B)**	ought	**(C)**	used	**(D)**	have
24	**(A)**	doing	**(B)**	giving	**(C)**	taking	**(D)**	talking
25	**(A)**	each	**(B)**	whole	**(C)**	every	**(D)**	all
26	**(A)**	chance	**(B)**	knowledge	**(C)**	account	**(D)**	source

Part 6

Questions 27–32

For each question, write the correct answer. Write one word for each gap.

Our Holiday in Spain

Our trip to Spain was wonderful! First, we flew to Valencia, one of the **(27)** ..... beautiful cities in Spain. It's a nice and elegant port city. We stayed at Hampton by Hilton there for three nights. We went sightseeing and just relaxed at the swimming pool.
From Valencia, we flew to Ibiza, arriving **(28)** ..... Saturday morning. We went to Las Salinas, **(29)** ..... is one of the most popular beaches in Ibiza. The next day, we had a go **(30)** ..... water skiing or parasailing. One night, we took a bus tour to a traditional Ibizan village and stayed for dinner and a Flamenco show. We heard Spanish songs for voice and guitar, and we saw traditional dances-it **(31)** ..... a very special evening.
From Sant Jordi, we drove to San Rafael. We stayed there for two nights. The very next day, we drove back to Ibiza and flew back to Valencia. We plan to come back to Spain soon, **(32)** ..... for now, we're on our way to Portugal!

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