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Effects of Blended Learning on Reading Comprehension: A Case Study of High School Students in Kasur, Pakistan

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Abstract: *MALL has grown in ESL classes during the previous decade. Researchers may now study the pros and cons of blended learning (BL), which combines online and in-person education. This quasi-experimental research examined how BL affects reading comprehension. This research examined how blended learning (BL) affected students' writing comprehension. 60 Pakistani secondary school pupils were split into control and experimental groups. The experimental group used "Reading Comprehension" mobile phone software to merge traditional teaching with blended learning for two months. An independent samples t-test compared pre-and post-test results. BL improved reading comprehension in the research.*

Key Words: Blended Learning, Mobile-Assisted Language Learning, Reading Comprehension, Traditional Instruction

Introduction

All people utilise language to communicate (Hornby & Cowie, 1995). To be considered seriously, you must speak, listen, read, and write in any language. Reading comprehension develops language competency in language learning and teaching and creates and spreads information in other academic and scientific domains (Neufeld, 2005). Neufeld (2005) said every reading activity should aim towards comprehension.

Education aims to enable pupils to read

and comprehend in both their native and second languages. Duffy (2014) argues that men need reading and comprehension skills to succeed in a literate society. Thus, current language education research emphasises reading comprehension.

Language learning progresses in direct correlation with instructional methodology. W. Kim (2007) identifies two primary settings for acquiring a new language: online and offline. According to W. Kim (2007), in a conventional classroom setting, both the instructor and the student must be physically present at the same

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time. Learning a language using mobile devices, also known as mobile-assisted language learning (MALL), is an effective alternative to traditional classroom settings (Naderi & Akrami, 2018). O'Malley et al. (2005) state that in mobile ad hoc learning environments (MALL), the learner is not confined to a single location when acquiring knowledge. Learners in MALL, as defined by Alemi, Sarab, and Lari (2012), are not restricted to the hours and places traditionally associated with classroom instruction. The term "blended learning" describes the educational process that develops when several teaching approaches are combined. Procter (2003) defines BL as "an approach to learning and teaching that integrates technological and conventional approaches."

BL is not a standalone type of learning, nor does it contradict other modes of education; rather, it is a combination of traditional and e-learning or m-Learning to provide better results (Chomchaiya, 2014). Because the student may study the same lecture or course as many times as he wishes at any time, BL produces better and more acceptable outcomes. In this method, the student can clarify the learning concepts that were not clear or comprehended in the classroom (Chantem, 2010). According to Chantem (2010), BL improves learners' reading comprehension. Therefore, rather than using solely traditional classroom teaching methods to teach reading skills, BL could also be integrated to get greater outcomes.

At present, new resources such as applications of mobile phones and computers are used for language teaching (Wang & Heffernan, 2009). There are several mobile applications such as Busuu, Babbel, Duolingo, Fluentu, and Memorise which help students in learning (Nushi & Jenabzadeh, 2016). *Reading Comprehension* is also a mobile phone application developed by Take Your Way and has been used by the researcher for the present research project. This application has been developed for improving English reading comprehension.

Literature Review

The primary goal of all linguistic skills is to extract the intended meaning of the speaker or text based on the context. Reading comprehension is a fundamental skill, and it is well acknowledged that it is the source of advancement of language competency not only in terms of learning and teaching but also in gaining knowledge in all subjects (Neufeld, 2005). According to Chomchaiya (2014), The ability to decipher the author's intended meaning from the text rests with the reader. A reader's comprehension occurs when (a) their past knowledge, (b) the words' intended meaning, and (c) the context interact to form the desired meaning (Shehata, 2019). According to Chomchaiya (2014), English reading comprehension is the capacity to understand the essential meaning of texts written in English.

When it comes to enhancing linguistic skills, MALL is unparalleled. According to Yang (2013), most individuals nowadays have access to smartphones that can be used to access online or offline mobile apps that may aid in the development of reading and other abilities. With MALL, students can get immediate feedback on their reading comprehension and reap the benefits of traditional and digital modes of instruction (Powell et al., 2015)

The process of language learning has changed as a result of the availability of new and innovative resources such as various applications for smartphones and laptops or PCs. (Wang & Heffernan, 2009). Language learners may now utilize software such as Busuu, Babbel, Duolingo, FluentU, and Memrise, among others, to learn a language (Nushi & Jenabzadeh, 2016). Munday (2016) characterizes Duolingo as an internet mobile application that assists students in learning the reading and grammar of other languages. Busuu is another mobile application that assists learners in learning key language skills and is used by sixty million people worldwide (Nushi & Jenabzadeh, 2016). According to Nushi and Jenabzadeh (2016), the student may practice twelve languages while using this tool, which is supported by other applications such as

Duolingo. Similarly, *Reading Comprehension* is also a mobile application that can be used to learn English reading comprehension.

Take Your Way Company developed the *Reading Comprehension* application. This was the technology employed in the present study to integrate BL into traditional classroom instruction. It is easily downloadable from the Google Play store and can be installed on a smartphone. It assists users in improving reading comprehension skills such as drawing conclusions, finding the main idea, key information, comparison, contrast, logical reasoning, inferring, skimming, and comprehending the meaning of words based on their context and relevant prior knowledge.

There are three sections in the application comprising 328, 185, and 64 lessons respectively. Each lesson consists of a paragraph followed by four multiple-choice questions (MCQs). Some questions are asked to ensure that the correct information is obtained, which helps to develop the skill of drawing conclusions and identifying important facts. Sometimes the student is asked the meaning and antonyms of particular terms in the paragraph based on their contextual usage, which promotes the learner's abilities of comparison, contrast, comprehending the meaning of words based on their contextual use, and background knowledge. The main theme of the paragraph is asked in several questions, which improves the skill of skimming, locating the main idea, and drawing a conclusion. After reading each paragraph, the reader answers the questions at the end. After reading each paragraph, the reader answers the questions at the end and can see the result immediately. If the student's answer is incorrect, the correct option is indicated. As a result, the student knows the correct answer, which improves his or her English reading comprehension skills.

Aside from its features, the application is also quite simple to use. Learners may use it whenever and wherever they want. In certain rural areas of Pakistan, network issues make it difficult for people to use online applications at home, but this application may perfectly be

suitable for such conditions. After a one-time installation on the mobile phone, it requires no internet connection making it simpler and more comfortable to use at home than other online apps. The application's functioning is quite engaging to the students. It provides immediate feedback and corrects incorrect answers. In addition, it is goal-oriented and motivational.

The lecturer and student communicate in a face-to-face classroom. E-learning emphasises self-paced, asynchronous learning (Dennis, Bichelmeyer, Henry, & Akr, 2005). Technology has integrated the two mediums, and blended learning mixes traditional and electronic learning. Blended learning gives ESL students a personalised, self-managed language learning environment. Blended learning integrates information and communication technologies with multiple teaching methods (George-Walker and Keeffe, 2010).

BL outperforms traditional education, according to researchers. Al Shlowiy (2016) claims that BL is beneficial for students since it makes course information available outside the class. Owston, York, and Murtha (2013) also say that BL lets students practise till they understand. Conventional teaching includes a talk that students cannot replay.

Reading comprehension study supports BL's influence on student achievement. Blended learning affected sixty Iranian EFL students' reading skills. Blended learning improved reading comprehension, leading researchers to believe it may help kids learn to read. Chomchaiya (2014) assessed Thai university students' English reading comprehension using online blended learning. The research found blended learning effective for English instruction. Kheirzadeh and Birgani (2018) found that the BL platform might boost readers' comprehension. The research found that blended learning greatly improved pupils' reading comprehension. Harpiansi and Suryani (2019) investigated how blended learning affected students' academic English reading. The experimental and control groups had statistically significant efficiency differences. Blended learning improved pupils' reading fluency. Lamri and Hamzaoui (2018) tested 19

intermediate Algerian law students. This study taught English on Moodle using a blended learning strategy to improve reading comprehension. BL was proven to be efficient and productive in two ways. It introduced pupils to long legal paperwork. Second, having so many possibilities for free time and being able to talk to professors online about their problems motivated students. Furthermore, experiment participants outperformed non-participants. The study found that BL improved reading and topic comprehension in kids. Prescott, Bundschuh, Kazakoff, and Macaruso (2018) used BL to teach 80% of English language learners in kindergarten through grade five. BL improves reading. Grade two pupils improved more than higher graders. According to the research, the combination method improves early grades significantly. Djiwandono's (2018) research shows BL's efficacy. Djiwandono (2018) gave 24 undergraduate EFL students the mixed approach treatment for six weeks to see whether it improved reading comprehension, vocabulary, and group collaboration. According to the data, the experimental group's reading and vocabulary improved after exposure to extra reading resources outside of class.

2017 Bolandfiar 42 Malaysian undergraduate ESL students had their reading comprehension tested after blended learning. All groups improved reading comprehension and critical thinking pre-, mid-, and post-test. Blended learners outperformed face-to-face pupils in reading and critical thinking. Blended learning enhanced critical thinking and reading comprehension. Alnuari (2018) also explored how blended learning increased expository literature comprehension. Blended learning enhanced reading comprehension. According to studies, blended learning methods improve reading by giving students more time to read outside of class and encouraging active engagement in answering questions.

Boredom Discourages English Language Learners

Hui (2016) examined how blended learning

affects students' progress in basic themes, feedback, inspiration, and knowledge practises. Blended learning and training improved science, history, and English reading comprehension in this study. Twelve subject instructors watched three-grade class planning and organisation. Blended learning improves academic achievement across the board. Blended learning boosts intrinsic motivation, class engagement, and teacher commitment. Even simple blended learning works. Cavus and Ibrahim (2009) examined how BL affected reading performance via SMS. The research found that students liked this approach and that MOULTs helped them become better readers. The study found that BL is a useful and beneficial language-learning strategy. BL treatment improves results in most studies. The above research applies to BL in English teaching. Combining technology with traditional teaching methods seems to help maintain academic standards in the modern world. BL is a great way to improve English reading comprehension, according to Thorne (2003). Pakistan lacks the resources to give technology to all pupils (Rachid, Cunningham, Watson, & Howard, 2018). Despite attempts to increase English reading comprehension, Qureshi, Ilyas, Yasmin, and Whitty (2012) report that Pakistan still lags behind other wealthy nations. Hussain, Niwaz, Zaman, Dahar, and Akhtar (2010) also state that conventional approaches alone cannot increase reading comprehension in Pakistani children. The BL style of teaching allows students to study English reading course contents until they comprehend them, meeting current demands. This research will assist instructors and students pick a reading comprehension approach to attain an appropriate level by giving the results of the two teaching techniques utilised in the study. The study examines how blended learning influences reading comprehension.

Methodology

Blended learning's effect on reading comprehension was examined in this quasi-experimental pre-test and post-test quantitative study.

Sampling

The research included 60 secondary Kasur District Public School pupils. English was a fundamental subject for the 14–18-year-old boys in the same grade. The entrance exam showed similar comprehension and reading comprehension skills.

The school has thirty-student secondary classes. The experiment divided students into control and experimental groups. The experimental group used integrated learning, whereas the control group used conventional techniques. Fraenkel, Wallen, and Hyun (2012) recommend at least 30 individuals in both the experimental and controlled groups for experimental and causal-comparative research.

Material Development

The course was built for the participants based on their course objectives. The instructor created tasks to help students infer, skim, and comprehend word meanings in context, form inferences, and identify the text's major topic. The experimental group read two paragraphs and did mobile phone activities along with the control group's printed material.

The same course content was delivered to both groups using the following two different types of teaching approaches:

Control Group Lesson Plan

The lesson plan for the Control group was created in accordance with the class's timetable. After students completed the tasks, the teacher taught them two paragraphs from the selected text and provided feedback. The control group's students were taught in the classroom in face-to-face traditional instruction method for fifty minutes on a regular basis from November 2019 to December 2019.

Experimental Group Lesson Plan

The experimental group studied the course content using selected textbooks and a mobile phone application called *Reading Comprehension*. The teacher taught two paragraphs from the text and one paragraph

from the mobile application and provided feedback to the students on the completed activities. The group members were tasked with completing two more activities via the mobile application at home. Every day at school, the lesson lasted fifty minutes. The BL group received BL treatment via a mobile phone application in addition to the conventional face-to-face classroom format.

The Instructor

The instructor was an English teacher at the same school where the study was performed. The instructor was well-qualified and was already familiar with the traditional and BL forms of instruction employed in the study.

Research Instruments

Research instruments refer to the tools used to assemble information for study. A reading comprehension exam (RCT) was developed for this purpose and used as a pretest and posttest in the present investigation (Appendix-A). The exam has thirty questions and was made after suggestions from Zhou (2011). There were three parts to the test. There was a single reading passage followed by 10 MCQs for the first part of the test. The second part of the test was a short reading comprehension with ten items to be checked off as true or untrue. The final part of the exam was a set of 10 multiple-choice questions based on a text. Students were to use just the words provided in the text to complete the phrases. The RCT was designed to assess reading comprehension in terms of understanding the meaning of words in context, finding the Main Idea, scanning, inferring, skimming, and drawing the Conclusion. In short, every question in the exam was created to assess a specific skill of English reading comprehension.

Data Collection

(Taylor, 2008) believes that a pre-test and post-test approach is an appropriate process for measuring test hypotheses, and learning outcomes, and investigating variances in learning performance. According to Creswell

(2002), in an experimental study, a post-test is used to account for differences in subject performance.

A pre-test was administered to all individuals prior to administering the treatment to the experimental group. After teaching the experimental and control groups using BL and F2F approaches for two months, the same RCT was used as a post-test for all participants.

Data Analysis Techniques

An Independent sample T-test was used twice to resolve the research problem. We examined the two groups' pre-test scores for similarities and differences. Post-test comparisons examined how BL affected students' comprehension.

Pre-test Results

Independent samples t-test compared to control and experimental pre-test results. Sample pre-test statistics:

Table 1

Group Statistics of Pretest.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Experimental Group	30	19.63	3.917	.715
	Control Group	30	17.20	3.010	.550

Tables 1 and 2 provide pre-test independent sample t-test findings. Table 1 shows the two groups' pre-test reading comprehension averages and standard deviations. Control Group scores were 17.20 (SD = 3.010) while

Experimental Group scores were 19.63 (SD 3.917).

The experimental group (M=19.63, SD=3.917) and the control group (M=17.20, SD=3.010) had similar pretest scores.

Table 2

Independent Samples Test of Pretest.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Pretest	Equal variances assumed	2.352	.131	2.698	58	.009	2.433	.902	.628	4.239
	Equal variances not assumed			2.698	54.96	.009	2.433	.902	.625	4.241

This implies that participants in both groups had the same level of reading comprehension prior to receiving any treatment.

Post-test Results

Students' reading comprehension following BL was evaluated using an independent samples t-test. The post-test averages and standard deviations for reading comprehension for the

two groups are shown in Table 3. The Experimental Group scored 26.17 (SD = 2.73) compared to the Control Group's 20.10 (SD = 1.72).

Table 3

Group Statistics for Difference between the Two Groups on the Post-test.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Post-test	Experimental Group	30	26.17	2.730	.498
	Control Group	30	20.10	1.729	.316

The experimental group's post-test scores (M=26.17, SD=2.73) were significantly higher than the control group's (M=20.10, SD=1.72) (t (58) =10.28, p = 0.003). Blended learning improves pupils' reading comprehension.

Table 4

Independent Samples Test.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper	
Posttest Equal variances assumed	9.386	.003	10.282	58	.000	6.067	.590	4.886	7.248
Equal variances not assumed			10.282	49.039	.000	6.067	.590	4.881	7.252

Overall, blended learning may increase students' reading comprehension. Secondary blended learning enhanced reading comprehension significantly. BL-taught students scored better on post-lesson tests.

Discussion on Effects of BL on Reading Comprehension

The results show that blended learning significantly improves students' ability to understand what they read. In this experiment, pupils who were given BL instructions did better than those who were given standard instructions. The results demonstrate that students improve their reading comprehension skills via blended learning. The findings support the BL Constructivism theory, according to which the learner is an active

producer of knowledge who uses knowledge and technology to improve learning quality as needed (Al-Huneidi & Schreurs, 2011).

The convenience and ease of blended Learning reading skills gives it an edge over traditional methods of teaching, and BL beneficiaries outperform their competitors as a result. According to Kim (2014), the incorporation of mobile phone applications in BL improves learners' reading comprehension by providing them with easier access to sources and up-to-date knowledge.

According to Medina (2018), BL is beneficial for learners to enhance their reading comprehension abilities since it provides easy access to information and prompt feedback. Similarly, Bojović (2017) confirms that BL benefits learners more than traditional

methods of language learning because it is reusable and administered by individuals based on their needs and the quest for knowledge, and they can use the available material as many times as they want to improve their reading skills at their convenience and time.

Furthermore, learners' easy and timely access to relevant information may have aided and improved their performance. Graham, Allen, and Ure (2005) demonstrate that the BL strategy is the optimal technique to transfer knowledge to learners for the development of abilities that they wish to increase and improve. Traditional methods may only offer learners one opportunity to gain knowledge. Learners are sometimes unable to comprehend the information. However, the BL mode assists learners by assuring the delivery of material to the learners and providing them with access to the source as many times as they require (Graham et al., 2005).

Moreover, learners have been drawn to the blended learning platform because it is interesting and offers quick solutions to their problems (Hasmunarti, Bahri, & Idris, 2019; Palalas & Wark, 2017; Sun, 2018). Powell et al. (2015) believe that the BL approach for reading comprehension competence is more encouraging than the traditional mode. Thus, improved performance may be attributed to learners' greater engagement in the learning process and the availability of answers to their questions which made BL more effective for them.

Another factor that makes BL advantageous and convenient is the combination of two teaching modalities, namely conventional and digital. The function of BL as a complement to traditional instruction allows learners to benefit from the advantages of both forms. Additionally, BL supports traditional methods by filling gaps in them and improves learners' skills (Owston et al., 2013). Thus, the findings may be linked to the availability of numerous learning platforms in blended learning. Behjat, Yamini, and Bagheri (2012) agree that BL provides learners with the chance to study using both digital and face-to-face methodologies, which aids in the

development of reading competency. Al Shlowiy (2016) concludes that BL is more effective since students may access the content both inside and outside of the classroom. They can receive feedback and practice the assignment at any moment while in a BL program. In this approach, students may use technology to improve their reading and other second or foreign-language abilities (Al Shlowiy, 2016).

Reading is a stepping stone for learners in all fields since there is no meaning without comprehension of the written information. As a result, learning this skill is critical for students. Traditional learning methods enhance it, but the BL technique is more beneficial in this scenario. Traditional methods give learners with limited and less authentic content. According to Behjat et al. (2012), BL offers learners more genuine information on the internet through various sites, allowing them to respond more validly to the content they have read and improving their reading comprehension skills. BL promotes the student's reading comprehension proficiency by exposing him to a variety of activities and authentic sources, and it gives the learner chance to read texts in both printed and online forms (Behjat et al., 2012). The learner can practice with the aid of exercises as many times as he needs till he comprehends the material.

The use of BL under the guidance of a teacher may also have resulted in a more effective learning platform for the students. The learners may have used BL on their own, but it would not have produced the expected effects and advantages. Therefore, for the desired outcome, incorporation of BL under the supervision of a teacher seems imperative. According to Horn, Gu, and Evans (2014), BL should be implemented under the supervision of a teacher since the instructor appropriately leads the learners to improve their abilities. Learners who are not supervised by instructors are unable to manage the materials and technology effectively.

It was also discovered by Ghazizadeh and Fatemipour (2017) that BL aids in a better understanding of what is read. Reading

comprehension is enhanced by BL, as shown by studies by Kheirzadeh and Birgani (2018) and Harpiansi and Suryani (2019). Alnuari (2018), Bolandfiar (2017), Djwandono (2018), Lamri & Hamzaoui (2018), and Prescott et al. (2018), among others, have shown that integrated learning increases students' ability to understand what they read.

Despite similar findings, the study is not conclusive. Some extraneous factors have also been reported to impede or even prevent the efficacy of blended learning. In this regard, Kazakoff, Macaruso, and Hook (2018) discovered that learners' age and grade level had a significant detrimental influence on the effectiveness of BL for enhancing reading abilities. Age, in particular, has been identified as an important influencing element in the effectiveness of independent variables in general. Khechine, Lakhel, Pascot, and Bytha (2014) indicate that age significantly disrupts the routine of findings.

Recommendations

The Reading Comprehension application was employed in this study. It is recommended, however, that future researchers investigate the efficacy of other popular mobile

applications commonly used by students for enhancing reading comprehension and other language components.

In the current study, blended learning was carried out under the supervision of a teacher. Future studies may investigate the efficacy of blended learning, which is used by learners autonomously.

Conclusion

Reading comprehension is a crucial linguistic ability. When combined with conventional methods of education, the use of technology increases learners' reading competence and yields better outcomes than Face to Face approach. Learners in the BL form of learning have access to both e-learning and face-to-face training. BL learning makes language learning more interesting and simpler for students. It enables learners to enhance their reading skills at a time and location of their convenience, with easy access to the content and rapid feedback. The crux of the whole discussion is that the positive effects of BL on reading competence vote in favour of using the BL form of instruction for reading comprehension at the secondary level.

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