

## EFFECTIVENESS OF BOLTİ KİTABAIN SOFTWARE FOR THE IMPROVEMENT OF READING COMPREHENSION SKILLS OF GRADE 4 LEARNERS IN THE PRIVATE SECTOR SCHOOLS OF LAHORE

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### **ABSTRACT**

*Reading comprehension is an important skill for academic achievement, however, some learners experience challenges when engaging with traditional textbook-based reading materials. The previous studies revealed that Pakistani ESL learners often find reading task very challenging, however, the increased exposure of students to the digital reading material may help mitigate these challenges and improve communication skills. The current study aims to explore the effectiveness of Bolti Kitabain software on the reading comprehension skills of learners. This study employs Exploratory sequential Mixed-method research design and Vygotsky's sociocultural theory of cognitive development (1934). Sixty students constituted the sample that was randomly selected from Grade 4 learners in the private sector schools in Lahore, Pakistan and equally divided into control group and experimental group students, 30 students in each. There was four weeks intervention phase. The experimental group students received intervention through Bolti Kitabain software, while the control group students continued learning through traditional English textbooks. The quantitative data was based on pretest and posttest scores while the qualitative data was based on focus group discussions which were administered to six English language teachers. The Quantitative data collected from the pretest and posttest scores of the students was analyzed using SPSS whereas the qualitative data was transcribed using Nvivo. The findings of the study revealed that Bolti Kitabain software remained an effective approach in improving the reading comprehension skills of the learners.*

**Keywords:** Bolti Kitabain software, Reading Comprehension skills, ESL learners, Private Sector schools

### **Introduction**

Reading comprehension involves the dynamic process of generating and constructing meaning through active interaction and engagement with written text (Arianto et al., 2022). Despite the global innovations in digital pedagogy, Pakistani mainstream schools are still dominated by traditional pedagogical strategies especially reading text aloud (Bhatti & Anjum, 2022). This persistent reliance on outdated instructional strategy results in limited students engagement and poor comprehension skills which highlights the dire need of technology-integrated instructional interventions. Such ineffective pedagogical techniques can be improved through the visualization of course content and the presentation of reading content, fostering creativity and boosting self-assurance in the learning process (Asrul et al., 2020).

E-learning is widely used in educational contexts and collaborative learning between students has significantly increased through the use of electronic media (Keyser & Keyser, 2022). Additionally, learning materials supported by computers provide students with a variety of opportunities to explore diverse methods for the accomplishment of academic tasks (Cárdenas,

2020) as the technological advancement has multiple options for improving the teaching and learning process (Kurt, 2020). Developing computer-aided materials for English language learners is an evolving field of research in Pakistan, as such materials have the significant potential to transform the reading comprehension skills of English language learners from scratch to splendor (Reading, 2023).

By integrating e-reading experience with audiobooks, students' comprehension skills and knowledge may be enhanced at a relatively higher rate (Williams, 2022) as this experience may increase the students' motivation to complete their task well before or on time.

Bolti- Kitabain software offers the students a learning platform where students can enjoy listening to their favorite books at their own pace by offering various categories and subcategories where students can select according to their interest and class level ranging from class 1 to 5 offering various sections for improving their academic performance through changing the textbooks reading content into audio and video lectures. Moreover, students are provided with activities that are helpful for them to improve their Reading comprehension skills (Javed, 2022).

In an experimental study, Capodieci et al., (2020) explored the effectiveness of e-learning of Grade 4 students' and the results revealed that the instructional software was efficient in improving the reading comprehension skills of Omani students. In the same way, Capodieci et al., (2020) conducted an experimental research to investigate the effectiveness of Active Reading Software (ARS) on the students' reading comprehension skills of Saudi EFL learners at the tertiary level. The findings favors the integration of technology in enhancing the reading performance of the learners. Literary digital information on the screen can be efficient and beneficial to students' understanding of the subject matter and levels of engagement (Jiawook, 2021).

### **Research Questions**

1. How effective is Bolti Kitabain software for improving the reading comprehension skills of learners?
2. What are teachers' perceptions of teaching English through Bolti Kitabain software?

### **Methodology**

The present study employed a Quasi-Experimental research design following pretest and posttest design to measure the effectiveness of Bolti Kitabain Software in improving reading comprehension skills of ESL learners at the primary level in the private sector schools situated in Lahore, Pakistan. The subjects of the study were assigned to two groups based on the non-probability random sampling criteria that determines the effectiveness of the intervention. The independent variable (IV) of the study is teaching through Bolti -Kitbain software whereas the dependent variable (DV) is the performance of the students.

In the present study, the pre-test was conducted to check the students' present reading comprehension skills before using the software. After the four-weeks treatment, a post-test was administered to check the results of the software in improving the reading comprehension skills of the learners. The quantitative data was analyzed through paired sample t-test by using SPSS. The qualitative part of the research was related to the perceptions of English language teachers regarding Bolti-Kitabain software and the data was analyzed using NVIVO.

### Theoretical Framework

The present research follows the theoretical framework based on Vygotsky's sociocultural theory of cognitive development (1934). The Zone of Proximal Development defines the difference where the learners learn independently what a child can do and with the assistance of the experienced or more knowledgeable others. The Teacher scaffolds the lessons so that the students have the opportunity to expand their knowledge. More Knowledgeable Others (MKO) include students' interaction with technology, teachers, and their peers to promote maximum cognitive growth by involving themselves in challenging tasks (McLeod, 2023).

The sample was selected from the grade four of a private-sector school situated in Lahore. 60 students were randomly selected who were further equally divided into two groups: control and experimental group.

### Instruments

The instruments used for data collection were the reading comprehension pretest and posttest based on the purposively selected chapters from English Textbook based on SNC to ensure the curriculum relevance with the learners.

#### Pre-test and Posttest

A reading comprehension pretest was conducted based on the material of English Textbook of Grade 4. Pretest served as a baseline to analyze students' weak areas. The tests were based on the chapters selected from English SNC Grade 4. The Selection criteria of these chapters was primarily guided by the respective English language teachers. Activities such as Story Mapping, Brainstorming, Picture Composition, and Mind Mapping were the vital constituents of the Bolti-Kitabain software. Posttest was conducted after four weeks of treatment to check the effectiveness of Bolti-Kitabain software.

#### Focus Group Interviews

Six English language teachers, who had utilized and implemented Bolti-Kitabain software participated in focus group interviews to examine the role and impact in improving the reading comprehension skills of learners at the primary level.

### Results and Analysis

Following a systematic analysis, the findings are discussed in detail to address the research questions and objectives.

#### Pre-Test

Given below tables report the pretest performance of 30 control as well as 30 experimental group students. The table 1 reveals the performance of the control group participants according to the rubric divided into weak, neutral, moderate, and strong level performance as suggested in the English textbook written according to the SNC by Javed Publishers accompanied with Bolti Kitabain software.

**Table 1**

*Pre-test control group*

	Pre Test Control			
	Weak	Neutral	Moderate	Strong
Comprehension Monitoring	18	8	4	0
Authors Purpose	14	12	4	0

Main Idea and Supporting Details	13	15	2	0
Vocabulary	10	13	7	0
Inference Making	7	20	3	0
Theme	13	14	3	0
Comparison and Contrasting	8	19	3	0
Sentence Construction and Cohesion	8	16	6	0
Sequencing	15	12	3	0

The table 2 reveals the performance of the experimental group students according to the rubric divided into weak, neutral, moderate, and strong level performance as suggested in the English textbook written according to the SNC by Javed Publishers accompanied with Bolti Kitabain software.

**Table 2**

*Pretest Experimental Group*

	Group Pre Test Experimental			
	Weak	Neutral	Moderate	Strong
Comprehension Monitoring	13	16	1	0
Authors Purpose	14	16	0	0
Main Idea and Supporting Details	14	15	1	0
Vocabulary	11	14	5	0
Inference Making	12	12	6	0
Theme	15	13	2	0
Comparison and Contrasting	19	9	2	0
Sentence Construction and Cohesion	12	16	2	0
Sequencing	14	16	0	0

### **Post-test**

Given below tables report the post-test performance of 30 control as well as 30 experimental group students. The table 3 reveals the performance of the control group participants according to the rubric divided into weak, neutral, moderate, and strong level performance as suggested in the English textbook written according to the SNC by Javed Publishers accompanied with Bolti Kitabain software.

**Table 3**

Post-test Control group

	Post Test Control			
	Weak	Neutral	Moderate	Strong
Comprehension Monitoring	0	12	14	4
Authors Purpose	0	11	18	1
Main Idea and Supporting Details	0	11	18	1
Vocabulary	0	10	19	1
Inference Making	0	8	18	4
Theme	0	11	18	1
Comparison and Contrasting	0	7	22	1
Sentence Construction and Cohesion	0	10	18	2
Sequencing	0	9	19	2

The table 4 reveals the performance of the experimental group students according to the rubric divided into weak, neutral, moderate, and strong level performance as suggested in the English textbook written according to the SNC by Javed Publishers accompanied with Bolti Kitabain software.

**Table 4**

Post-test Experimental Group

	Post Test ExperimentalGroup			
	Weak	Neutral	Moderate	Strong
Comprehension Monitoring	0	0	3	27
Authors Purpose	0	0	2	28
Main Idea and Supporting Details	0	0	4	26
Vocabulary	0	1	11	18
Inference Making	0	2	2	26
Theme	0	1	7	22
Comparison and Contrasting	0	0	1	29
Sentence Construction and Cohesion	0	0	10	20
Sequencing	0	0	3	27

Based on the results, it can be inferred that the experimental group, which used Bolti-Kitabain software, performed significantly better than the control group. Improvement in the experimental

groups performance indicates the effectiveness of Bolti-Kitabain software in improving reading comprehension skills among IVGrade students.

A paired sample T-test was administered to gauge the significant difference between the scores of both the groups.

### Comparison of Pre-test Control group and Post-test Control Group

**Table5**

*PairedSamplesStatistics*

Mean			N	Std. Deviation	Std. Error
Pair 1	PostT	16.6000	30	2.67298	.48802
	PreT	15.6333	30	3.54754	.64769

### *Paired Sample Correlations*

N			Correlation	Sig.
Pair 1	PostT&PreT	30	.711	.030

Table 5 illustrates the means and standard deviations of the control group of 30 participants including their scores on reading comprehension tests in pretest and posttest. The results revealed that there could not be seen any statistically significant change in the performance of control group students.

**Table 6**

Paired Sample t-test of Pre Experimental and Post experimental

Mean			N	Std. Deviation	Std. Error
Pair 1	PostT	34.3000	30	1.39333	.25439
	PreT	14.5000	30	3.47156	.63382

### **PairedSamplesTest**

Mean			Std. Deviation	Std. Error	Paired Differences	
					95% Confidence Interval of the Difference	
					Lower	Upper
Pair 1	PostT-PreT	19.80000	3.79110	.69216	18.38438	21.21562



745

Opportunities like workshops, peer collaboration, and hands-on coaching were suggested to boost teachers' confidence and competence in using software effectively. Professional training and development can help teachers maximize software benefits and address classroom-specific challenges.



#### Word cloud of the theme "Professional development opportunities"

#### DISCUSSION AND CONCLUSION

The fundamental aim of this study is to explore the effectiveness of Bolti Kitabain software for improving the reading comprehension skills of Pakistani ESL learners. The analysis of the data aligns with the findings of the studies revealed that the software had proved to be an effective tool in enhancing reading comprehension skills of the learners (Capodieci et al., 2020; Al-Zuhair & Alkhuzaim, 2022). Bolti-Kitabain software is designed on a particular curriculum whose aim is to target specific respondents. Through the process of digitization, Bolti-Kitabain software transformed the exercises into digital form to explore the impact on students' reading comprehension skills. Consequently, activities in such form proved stimulating and engaging for the learners while improving their motivation and confidence level. The study demonstrates that the significant increase in the performance of the experimental group students can be associated primarily to the integration of software which effectively improve their higher order thinking skills (Reading, 2023). For meaningful and effective communication, students learn vocabulary and it must be ensured that the vocabulary used for expressions should have 30% of previously learned and 70% of new vocabulary (Nongkseh et al., 2021).

As students performed the tasks in collaboration with their peers, their shared dialogues with more knowledgeable others provided useful hints, instructions and encouragement, the child internalized "how to do it" section of the task (McLeod, 2023). This approach leads to the Reciprocal teaching which aims to improve students' capability to learn from the text. Teachers and students both collaborated in practicing four skills such as summarizing, questioning, clarifying and predicting. While engaging in a two-way communication, reciprocal teaching allowed for a dialogue between teachers and learners. Learning became a reciprocal experience for students and teachers, as the instructional design was structured to promote and encouraged student interaction and collaboration in classroom sessions, a community of learning. Story Mapping is another important reading comprehension skill that is maneuvered in Bolti -Kitabain



software. The story map is a graphic organizer used as an activity that is helpful for the students in learning the elements of narration. Through Bolti Kitbain software, students were able to identify the elements of a story very easily, they organized information and ideas efficiently, and they gained a deeper understanding of how stories worked. Mind mapping is a robust technique to assist students in visibly establishing and arranging concepts and information. For capturing and organizing ideas and information, mind mapping provides a very structured way to assist students in comprehending concepts.

By incorporating text, images, and sounds, an interactive and engaging environment was created through multisensory experience that enhanced the overall reading process of learners. Participants were engrossed with the text in a more affluent way and evolved a deeper comprehension of the content. Scaffolding is the theory, resources, tools, instructions, and activities that were used to support the learning procedure. Scaffolds were found in the steps which acted as a foundation upon which students constructed their skills. The teacher created scaffolds that directed students through each lesson such as building connections activities used in Bolti-Kitbain software. This assisted students in apprehending the concepts and recalling the details. Scaffolding is very helpful for teaching a new skill and mental development process. If the teacher is not aware of the ZPD of every student, the application of scaffolding will be not effective. For this reason, teachers must create a balance between allowing students the development of innovative solutions to problems and giving them enough scaffolding. giving them practice exercises, asking questions so that students can explain their reasoning, effective problem-solving techniques. This helped students build confidence in their abilities and made them independent learners. Vygotsky theory promoted collaborative learning such that students of lesser capability were paired with more advanced peers (Kurt, 2020). Learning was structured by the teacher and their role was gradually decreased over some time. This permitted students to learn topics within their ZPD and the specific adjustments can be made by doing these activities and tasks, tackling higher difficulty level tasks. Discussion groups, small group learning, and collaborative exercises and activities promoted social learning. Teachers had a great experience with the task and this also develops their teaching strategies through the relevance of the software features according to the understanding level of the learners. By using visual aids, a learning environment was created in which students felt comfortable which motivated learners in the tasks where they were in trouble, minimized their frustration, and created a faster learning experience (Williams, 2022).

The current research gauges the effectiveness of Bolti-Kitbain software for the improvement in learning experience and reading comprehension skills of Grade IV learners based on the applications of Lev Vygotsky's sociocultural theory of cognitive development by using factors such as Scaffolding, cultural specific tools, Zone of Proximal Development, Reciprocal Teaching and Tools of Intellectual Adaptation. Activities maneuvered in Bolti-Kitbain software assisted in measuring the reading comprehension skills of the learners such as Inference making, Vocabulary Building, Story Mapping, Mind-Mapping, Graphic organizers, Sentence Construction and Cohesion, Comparison and Contrasting, Identifying Theme, Author's Purpose and Sequence of events.

The results demonstrated that the curriculum should prioritize the eclectic approach i.e. integrating communicative and collaborative approaches of English language teaching, blending interactive and skill-based teaching methodologies with Educational software. The findings

demonstrated that the Bolti -Kitabain software for English Single National Curriculum (SNC) Grade IV was an effective tool in improving the reading comprehension skills of the experimental group learners as these learners outplayed the control group. This demonstrated Bolti-Kitabain software allows teachers to engage students in an interactive situation where they listen, speak, read, and write. The analysis is further supported by the qualitative results which demonstrated teachers' positive perceptions about the implementation of software. Through conducting focus group interviews, teachers shared their opinions that activities were organized and conducted in such a manner that students were given the opportunity for individual, pair and group work. Through collaboration, students participation was encouraged as well as mistakes and errors were treated as a learning opportunity. By incorporating SLOs, teachers developed additional activities and gave instructions through Bolti Kitabain software that catered to the interests, abilities, and learning styles of students to make them independent and confident learners. Textual aids such as graphs, figures, and tables of contents facilitated the reading comprehension skills of learners by using skimming, scanning, predicting, and summarizing strategies. Through cooperative learning, students were paired in small groups for the maximization of their own and their peers' language learning by following student-students' interactions developing their social skills, and increasing their higher-order thinking skills through exploring the diversity of different point of views and investigation of the assumptions in the light of various perspectives.

In such pedagogical practices, usage of technology assists in facilitating the learning process and motivating learners to attain their academic goals through creating anxiety free environment. Therefore, language instructors should use ICT-based available resources and innovative technology as a scaffolding tool for enhancing the language proficiency of learners. Consequently, it can be stated that assimilating Bolti-Kitabian software in learning procedures can help increase the motivational level as well as enhance the linguistic skills of the learners for academic success. Ultimately, improving their proficiency level. Administrators, curriculum planners, and language instructors should collaborate and generate a setting for the successful implication of authentic software. More experiments should be conducted using instructional softwares and reading comprehension at its center. The experiments should be more controlled and randomized. Teachers should be given basic IT training to keep pace with the changing trends in language teaching. There should be a balance between technology-driven activities and traditional reading activities. Such balance which ensures the well-rounded set of skills of students, regular updation in software for incorporating improvements and addressing any issue along with training of software developers. Customer support should be there for the challenges that are faced by students and teachers. There should be an alignment of software with research-based methodologies and best practices in literacy institutions. A robust tracking system should be there which allows for monitoring the student's progress over time. Progress reports can assist in tracking overall development.

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