The Effectiveness of Classpoint Technology in Developing Reading Comprehension Skills among Non-Native Arabic Speakers

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***Abstract*—The research focused on examining how effective Classpoint technology is, in enhancing the reading comprehension skills of non-native Arabic students, at Yarmouk University Language Center in the second semester of the 2023/2024 academic year. Specifically, two groups of 40 students were involved. One group was taught using Classpoint technology while the other group was taught using traditional methods. A reading comprehension test was administered to assess the study goals after verifying its validity and reliability. The findings showed that Classpoint technology had an impact on enhancing reading comprehension abilities in the test group compared to their counterparts, in the control group with an eta squared value of 0.428. This indicates that 42.8% of the variance in reading comprehension performance can be attributed to the use of Classpoint technology. More clearly, the results found that the experimental group showed significant improvement in all areas of reading comprehension: literal, inferential, and critical-evaluative comprehension. The results emphasize how digital tools, for education such as Classpoint can boost the reading comprehension skills of non-native Arabic learners effectively. Nevertheless, the study small sample size could restrict the generalizability of the findings. Nevertheless, the results indicate that incorporating tools like Classpoint in language education might prove to be beneficial in enhancing reading comprehension skills among non-native Arabic learners. This supports the idea that there's potential for use of technologies in educational environments.**

***Keywords*—Classpoint technology, reading comprehension skills, learners of Arabic; non-native speakers**

I. Introduction

Language is the cornerstone of a nation's identity, embodying its culture and ideas. It functions not only as a means of communication but also as a vital tool that shapes thought. Consequently, teaching language and developing skills are prioritized at all educational levels, aiming to equip learners with proficiency in listening, speaking, reading, and writing. This importance has grown with advancements in educational research, particularly concerning language competencies, which highlight the significance of reading skills [1, 2].

Reading is often regarded as a gateway to human thought and an integral part of learning across diverse fields. It provides intellectual enrichment and enjoyment, distinguishing it from other language skills due to its intrinsic value. This importance becomes especially evident in teaching Arabic to non-native speakers, where reading is considered a foundational skill. Key objectives in Arabic language education include achieving reading proficiency, enabling learners to engage with the Quran, the teachings of Prophet Muhammad, and the rich cultural and intellectual heritage preserved in the Arabic language [3, 4]. Diverse interpretations of reading reflect researchers' views, considering it not merely a simple skill but an interactive, constructive, and analytical process [5, 6]. This process encompasses more than just word recognition or pronunciation; it involves comprehension, meaning-making, and cognitive engagement. It requires the reader to connect the text with prior experiences, interpret, evaluate, and employ imagination and critical thinking, transforming reading from a basic skill into a multidimensional cognitive process focused on meaning-making [7].

Despite the central role of reading proficiency in acquiring the Arabic language, concerns persist regarding the lack of reading and comprehension skills among learners. Several studies [8–10] underscore these issues, often attributing them to outdated curricula and inadequate teaching strategies employed by educators, as well as a lack of motivation among learners and ineffective instructional methods [10]. Furthermore, some teachers instructing Arabic to non-native speakers utilize digital applications minimally, exacerbating this problem.

Reading comprehension is the ultimate goal of the reading process and serves as a key indicator of success [11–13]. It involves using prior experiences and contextual features to extract meaning and encompasses processes such as selecting and organizing ideas and drawing information beyond the text [14, 15]. Al-Barakat & AlAli [9] assert that reading comprehension is fundamentally a cognitive process requiring meaning extraction through symbols and engagement at various levels of understanding.

Reading comprehension involves multiple skills and cognitive processes facilitated by the interaction between the reader and the text. Strategic readers engage in activities such as goal-setting, predicting the author's purpose, and

summarizing content [16]. The interactive learning approach aligns with Vygotsky's socio-cultural theory, which posits that learning occurs through social interaction, shaping cognitive processes and interpretations [17]. Similarly, constructivist theory suggests that learners create meaning from new information by linking it to prior knowledge [16].

Reading comprehension also encompasses a hierarchical progression of dimensions and levels relevant to teaching non-native Arabic speakers [11, 18, 19]. Typically, these levels contain literal, inferential, critical, and creative comprehension [8, 20–22]. These levels help identify students' skills and align them with language proficiency levels as outlined in the Common European Framework of Reference for Languages (CEFR) [8, 21, 22].

The emphasis on classifying levels of reading comprehension is not intended to divide reading processes but rather to assist educators in setting goals and selecting teaching methods that enhance learners' abilities. Engaging with the text and grasping its language and structure are essential, for Reading comprehension [23–25]. The way information is presented is crucial in helping learners comprehension and stay engaged, during the learning process.

Research by many researchers [1, 5, 8, 15, 26] demonstrates that interactive and participatory approaches enhance comprehension compared to solitary reading. Other studies support the positive effects of collaborative reading strategies on comprehension [4, 27]. Thus, various instructional strategies have emerged, focusing on fostering comprehension through thoughtful practice.

Advancements, in approaches require a reassessment of teaching strategies that highlight the importance of Arabic language teachers [2, 5]. Scholars have delved into techniques to improve reading comprehension in light of progressions. Tan *et al*. [28] argued that utilizing technology aids in language learning and emphasized the necessity for modern teaching methods, in enhancing reading skills.

ClassPoint, developed by Interactive Knowledge Network of Education (INKNOE), offers innovative, interactive solutions for digital instruction, seamlessly integrating with PowerPoint to enhance engagement during lessons (www.classpoint.io) [28–31]. Its features promote instant communication between educators and students, enriching learning experiences and fostering cognitive skills development [32]. ClassPoint enables teachers to transform traditional presentations into interactive sessions, ensuring continuous interaction [29, 32].

In light of the above, the importance of integrating digital tools such as ClassPoint emerges in enhancing reading skills, particularly as ClassPoint offers innovative solutions to increase interaction during lessons. This not only contributes to presenting new strategies to enhance students' language abilities but also supports teachers in developing effective instructional strategies, thereby fostering interaction and engagement among students and helping to overcome the educational challenges faced by Arabic language teachers in teaching reading skills [33, 34].

In response to this pressing need, recent studies have reviewed the effectiveness of various strategies for enhancing reading and comprehension skills. Positive outcomes have been observed in research related to interactive activities that utilize digital applications to support student learning, such as ClassPoint, Kahoot, and Gallery Run [27, 28, 30, 32]. However, there is a clear gap in the literature regarding the effectiveness of the ClassPoint tool specifically in developing language skills. Guided by this gap and informed by previous research findings,

The significance of this study arises from several factors. It contributes to the development of teaching methods by investigating the effectiveness of the ClassPoint tool, providing new strategies to enhance students' language skills. It also enriches the educational literature by highlighting the use of ClassPoint, encouraging the integration of digital applications in Arabic language education. The research also highlights the importance of integrating digital tools into education for Arabic language teachers and underscores the need for proper training. Moreover, this study is, in line with the changing requirements of students by embracing technological progress, in the sector to boost learners' self-assurance.

The significance of the research also involves tackling the difficulties educators encounter when instruct students who're non-native Arabic speakers, in reading and comprehension skills. In essence this investigation demonstrates a groundbreaking initiative as it marks the debut use of the ClassPoint tool, in Arab settings to enhance reading skills.

Considering the information provided earlier this research aims to investigate how the ClassPoint tool can improve the reading skills of non-native Arabic students. The primary focus of this study is to answer the main question: To what extent is the use of the ClassPoint tool effective in enhancing reading skills among non-native Arabic learners? To delve deeper into this question several specific sub questions are outlined below;

1) Is there a statistically significant difference at the significance level ($p \leq 0.05$) between the mean performance scores of non-native Arabic learners (experimental and control groups) in individual reading skills, as influenced by the instructional strategy (using the ClassPoint tool versus traditional methods)?
2) Is there a statistically significant difference at the significance level ($p \leq 0.05$) between the mean performance scores of non-native Arabic learners (experimental and control groups) in overall reading skills, considering the instructional strategy (using the ClassPoint tool versus traditional methods)?

II. Method

A. Study Design

In order to answer the research questions a quasi-experimental method was opted for specifically employing a pre-test/post-test model, with two different sized groups; one being the experimental group and the other the control group. This selection of design was made to examine how effective the Classpoint tool is, in improving the reading comprehension skills of non-native Arabic language learners.

In this context, two key variables were identified to assess the effectiveness of the teaching methods used in the study. The independent variable is the teaching method, which

comprises two levels: the first is teaching using the Classpoint tool, which was applied to the experimental group to foster interactive learning and engagement. The second level involves teaching using the usual method, which was employed for the control group. This arrangement allows for a comparison of the results achieved by both sets of participants and helps in assessing the efficiency of each teaching method effectively.

The study focuses on measuring the performance of participants in a reading comprehension skills test to assess their ability to understand and interpret texts after receiving different teaching approaches. The goal is to assess how effectively learners can utilize their reading abilities, across situations by incorporating these variables into the quasi-experimental design. The study aims to assess the impact of teaching techniques on reading comprehension through this approach.

B. Sample of the Study

The research participants were non-native Arabic language students attending the Language Center, at Yarmouk University in Jordan in the second semester of the 2023/2024 academic year. The selection of participants was done through convenience sampling because one of the researchers worked part time as a lecturer at the Language Center and had access to students, for conducting the study.

Two sets of participants were chosen randomly for the study. One being the experimental group (Group A) and the other being the control group (Group B). Each group was made up of 20 students comprising both male and female learners. The experimental group (Group A) reading comprehension training using the Classpoint tool. In contrast the control group (Group B) followed the curriculum of the center without incorporating Classpoint tool in their instruction.

The researchers ensured proportional representation of students by matching them according to their language proficiency level. This matching was based on a standardized proficiency test conducted by the Language Center prior to the study, allowing for a more balanced comparison of reading comprehension abilities across the two groups.

C. Equivalence of Study Groups

To verify the equivalency of the experimental and control groups, the researchers conducted an independent samples t-test on the pre-test reading comprehension scores for each group. This statistical test helped determine if there were any significant differences in reading comprehension skills between the groups before the intervention. Table 1 presents the pre-test results, confirming that both groups had comparable reading comprehension levels at the outset, thereby establishing a baseline for assessing the effectiveness of the Classpoint tool in improving reading comprehension among non-native Arabic learners.

This careful consideration of sample selection, matching, and baseline equivalency enhances the rigor of the quasi-experimental design, ensuring that any observed differences in reading comprehension skills between the groups can be attributed more confidently to the use of the Classpoint tool in the experimental group.

Table 1. Testing equivalence of study groups (experimental and control) in pre-performance on reading comprehension skills

Skills	Group	Mean	Sd.	t-test	Df.	Sig.
Literal Comprehension	Experimental	4.15	1.81	0.417	38	0.679
	Control	3.90	1.97			
Inferential Comprehension	Experimental	4.65	2.11	0.817	38	0.419
	Control	4.10	2.15			
Critical and Evaluative Comprehension	Experimental	12.45	4.54	−1.03	38	0.310
	Control	12.80	7.35			
Overall Reading Comprehension Skills	Experimental	4.15	1.81	−0.181	38	0.857
	Control	3.90	1.97			

D. Study Instrument

To meet the goals of this research project effectively and thoroughly assess reading comprehension skills in participants. A comprehension test was thoughtfully crafted by integrating knowledge from literature and sources and ensuring alignment with the proficiency levels outlined in the Common European Framework of Reference, for Languages (CEFR). The primary objective of the test was to evaluate participants abilities in three areas of comprehension skills including literal, inferential, and critical and evaluative comprehension. Each domain was defined by specific skills and levels, detailed as follows:

1) Literal Understanding Assessment addressed how well the individuals grasped concepts directly from the passage by distinguishing between word meanings, in context and interpreting verbal similarities while also identifying the meanings of specific words or phrases within the text itself to gauge their grasp of vocabulary in its surrounding context.
2) In the domain of Inferential Comprehension highlighted in this domain is the skill to understand meanings that go beyond the surface level of text content evaluation, for participants proficiency in discerning concepts and supplementary information to comprehend the overall message conveyed by the text material effectively They were also required to deduce essential insights or recurring subjects, within the material and pinpoint sentences or phrases that convey the writers viewpoints or motives to capture underlying implications.
3) Critical and Evaluative Comprehension: This final domain assessed participants' critical thinking skills in relation to the text. Participants had to choose a title that reflected the theme of the text and show they grasped its core message well enough to do so accurately. They also needed to differentiate between opinion-driven and fact-based statements and recognize how cause-and-effect connections were presented in sentences or phrases to demonstrate their skill in analyzing components.

E. Validity and Reliability

The preliminary version of the test included 33 items distributed across specified comprehension skill levels. After its construction, a group of 13 experts, comprising university professors and experienced language educators, examined the test to ensure its clarity, consistency, and relevance. Based on their suggestions, some changes were implemented, such as introducing criteria to refine specific skills and removing elements that did not fully align with the research objectives. These revisions resulted in a refined test version containing 30 multiple-choice items, each closely aligned with the comprehension skills in each domain. The final test had a total possible score of 30, with a time limit of 50 minutes, determined from the average completion time observed in a pilot sample of 25 students outside the main study sample.

To ensure the construct validity of the test, the relationship between individual item scores and both their corresponding skill domain and the total test score was analyzed. A subset of 25 male and female learners from the study sample completed the test, and the Pearson correlation coefficient was used to assess the linear associations. The correlation coefficients values, between each item and the total score, within their domain varied from 0. 50 To 0. 82 For literal comprehension domain, 0. 40 To 0. 76 for the inferential comprehension domain, and 0. 73 To 0. 90 for the critical and evaluative comprehension domain all exceeding the threshold of 0. 30 Thus affirming the construct validity.

Additionally, for a evaluation of reliability the test was given to the identical group of test takers after a two week gap and then the retest was conducted. The Pearson correlation values, between each items score and the overall test score ranged from 0.44 to 0.84 providing evidence, for the test construct validity. The revised correlation values varied between 0.50 and 0.82, for literal comprehension, from 0.68 to 0.86 for inferential comprehension and from 0.62 to 0.84, for critical and evaluative comprehension. This consistency across domains reinforces the validity of the comprehension skills assessment.

Reliability analysis demonstrated high internal consistency across all domains, with Cronbach's alpha coefficients of 0.93 for literal comprehension, 0.93 for inferential comprehension, and 0.95 for critical comprehension, as well as 0.96 for the overall test, all surpassing the 0.70 threshold. These findings confirm that each item effectively represents its intended comprehension skill, indicating that the test possesses strong reliability and validity.

F. Data Collection

Data collection is a step, in every research project as it impacts the validity and reliability of the findings collected in this study involved a range of steps to guarantee the data quality and authenticity in representing the actual experiences of Arabic learners who are non-native speakers. The subjects of the study were identified by selecting participants from learners studying Arabic as a foreign language at the Language Center of Yarmouk University during the second semester of the 2022/2023 academic year. A diverse range of students was chosen based on criteria to ensure a sample that reflects various linguistic and cultural backgrounds.

The researchers made preparations, for the study; one of them is a university faculty member while the other works time as a lecturer, at the center. This academic collaboration facilitated the logistical organization of the study and ensured clarity in the roles and responsibilities assigned to both the academic and educational teams. Before applying the educational materials, a preliminary reading skills test was conducted, which was carefully designed to assess a survey sample outside the study population. This step contributed to enhancing the credibility of the study, as it ensured that the test was aligned with the specified educational objectives.

Nine texts from the approved course book at the Language Center were selected as educational materials for reading skills, allowing for the assessment of students' comprehension in various contexts. These texts were applied to both the experimental and control groups, enabling comparisons between the results and the analysis of differences. To ensure that the results of the study were not biased, participants were divided using a simple random method into two groups. The experimental group (B) consisted of 20 learners who were taught using the Classpoint tool, while the control group (A) included another 20 learners who were taught using traditional methods, which was essential to minimize any external influences that might affect the study results.

During a phase of the process the participants were briefed on the study purpose highlighting that it would not impact their academic records. The researchers offered insights, into the study goals and importance aiming to establish trust, between the participants and the research team. This contributed to obtaining effective consent for participation in the study. Subsequently, the pre-reading comprehension skills test was administered to both groups on June 5, 2023, with validation and reliability checks performed on the test used, providing a clear baseline for performance comparison following the educational intervention.

For the experimental group, the Classpoint tool was implemented over six weeks, consisting of 24 sessions, each lasting 60 minutes. These sessions were designed to include interactive educational activities that enhance learning effectiveness. The experimental group was taught using techniques while the control group learned through traditional methods, like lectures and discussions. Following the phase on October 6th 2023, the experimental group took a posttest evaluating their reading comprehension skills with questions, from the pretest. On the hand the control group underwent their posttest on October 10th, 2023.

The test scores for both groups were analyzed by statistical methods. The findings were then examined within the framework of the research purposes. This enabled the researchers to form conclusions and suggest recommendations based on evidence. Such practices highlight the significance of data gathering. This contributes to building a knowledge foundation that supports enhancements in educational strategies and boosts the efficacy of teaching Arabic to non-native learners.

G. Data Analysis

To analyze the data related to the study's two questions, the researchers employed a systematic approach using various statistical methods. They first calculated the mean and

standard deviation to assess the central tendency and dispersion of the variables. Following this, a One-way Multivariate Analysis of Covariance (One-way MANCOVA) was conducted to examine the effects of the independent variables on the dependent variables while controlling for other factors. This analysis enabled the evaluation of multiple dependent variables simultaneously. To reinforce the findings, Hotelling's Trace test was applied, providing a robust assessment of group differences.

Additionally, follow-up One-way ANCOVAs were performed to clarify the specific impacts of each independent variable after accounting for covariates. A T-test was utilized to assess differences between two or more groups within the data, and the effect size of the teaching method was calculated using the Eta Square indicator, offering a quantitative measure of its influence on the outcomes. Through these analytical steps, the researchers provided coherent and reliable results that enhanced understanding of the impact of the educational curriculum on the studied variables, with each procedure logically building on the previous one for a clear and organized analysis.

III. Results

A. Results of the First Question

This section presents the statistical analysis conducted to assess the impact of different teaching strategies on the reading comprehension skills of non-native Arabic language learners. The study particularly focused on comparing the performance of participants in the experimental group, which utilized the Classpoint tool, against the control group, which followed the usual teaching method.

Table 2 shows the scores and standard deviations of how participants performed before and after the tests, in different areas of reading comprehension skills based on the teaching methods used.

Table 2. Mean scores and standard deviations of participants' pre- and post-test performance in reading comprehension skills, categorized by teaching strategy variable

Variable	Group	Maximum degree	Pre-test		Pro-test	
			Mean	Standard deviation	Mean	Standard deviation
Literal Comprehension	Experimental	10	4.15	1.81	8.75	1.07
	Control		3.90	1.97	5.75	2.40
	Total		4.03	1.87	7.25	2.38
Inferential Comprehension	Experimental	10	4.65	2.11	8.80	3.09
	Control		4.10	2.15	6.05	3.02
	Total		4.38	2.12	7.43	3.32
Critical and Evaluative Comprehension	Experimental	10	3.65	1.93	7.55	1.76
	Control		4.80	4.61	5.85	1.39
	Total		4.23	3.53	6.70	1.79

The data shown in Table 2 reveals differences, in scores between the test experimental and control groups during both the initial and final assessments in direct literal comprehension, inferential comprehension, and critical and evaluative comprehension. Notably, the experimental group consistently outperformed the control group, particularly in literal comprehension skills.

Table 3. Results of the Hotelling's trace test on the impact of teaching strategy on reading comprehension skills

Variable	Value	F	df	df error	Sig.	ETA square
Teaching strategy	0.747	8.215	3.000	33.000	0.0000	0.4280

To further examine the statistical significance of the observed differences in post-test performance while controlling for pre-test performance, a one-way MANCOVA was conducted. The results are shown in Table 3.

The MANCOVA results indicate a statistically significant effect of the teaching strategy on reading comprehension skills ($F = 8.215$; $p < 0.01$; Partial eta square = 0.428). The Eta square value of 0.428 suggests that the teaching strategy accounts for 42.8% of the variance in reading comprehension skills performance. A follow-up one-way ANCOVA was conducted to analyze the differences in post-test performance, adjusting for pre-performance. The results are presented in Table 4.

Table 4. Results of one-way analysis of variance for differences in post-test performance of study individuals in reading comprehension skills, controlling for pre-performance by teaching strategy

Source of variance	Speaking skills	Sum of Squares	df	Mean Square	F	Sig.	ETA square
Related Variables	Literal Comprehension - Related	1.721	1	1.721	0.716	0.403	0.020
	Inferential Comprehension - Related	0.580	1	0.580	0.061	0.807	0.002
	Critical and Evaluative Comprehension - Related	10.430	1	10.430	4.409	0.043	0.112
Strategy	Literal Comprehension	62.088	1	62.088	25.817	0.000	0.425
	Inferential Comprehension	61.047	1	61.047	6.403	0.016	0.155
	Critical and Evaluative Comprehension	17.044	1	17.044	7.205	0.011	0.171
Error	Literal Comprehension	84.170	35	2.405			
	Inferential Comprehension	333.688	35	9.534			
	Critical and Evaluative Comprehension	82.790	35	2.365			
Adjusted total	Literal Comprehension	221.500	39				
	Inferential Comprehension	429.775	39				
	Critical and Evaluative Comprehension	124.400	39				

The ANCOVA results indicate significant disparities in the performance of the experimental and control groups across all three reading comprehension skills. The Eta square values (0.425 for literal comprehension, 0.155 for inferential comprehension, and 0.171 for critical and evaluative comprehension) reveal that the teaching strategy variable accounts for a substantial portion of the variance in these skills, particularly in literal comprehension (42.5%).

To compare the adjusted mean performances of the experimental and control groups in reading comprehension skills, Table 5 presents the means, standard deviations, and standard errors before and after controlling for pre-existing differences.

Table 5. Means, standard deviations, and standard errors for the experimental and control groups in reading comprehension skills individually before and after controlling for pre-existing differences

Variable	Group	Before modification		After modification	
		Mean	Sd.	Mean	Standard error
Literal Comprehension	Experimental	8.75	1.07	8.56	0.356
	Control	5.75	2.40	5.94	0.356
Inferential Comprehension	Experimental	8.80	3.09	8.73	0.709
	Control	6.05	3.02	6.12	0.709
Critical and Evaluative Comprehension	Experimental	7.55	1.76	7.39	0.353
	Control	5.85	1.39	6.01	0.353

The findings in Table 5 reaffirm the superior performance of the experimental group across all reading comprehension skills. The results suggest that the teaching strategy employing the Classpoint tool significantly enhances reading comprehension skills in non-native Arabic language learners.

Overall, the analysis demonstrates the efficacy of the Classpoint tool in improving reading comprehension skills among the experimental group, highlighting its potential for educational practice in language learning contexts.

B. Results of the Second Study Question

This section examines whether there are statistically significant differences in the mean performance of non-native Arabic language students in reading comprehension skills, specifically comparing the experimental and control groups based on the teaching strategy variable (i.e., ClassPoint tool vs. traditional method), at a significance level of ($p \leq 0.05$). This analysis was conducted by calculating the means and standard deviations of participants' pre- and post-performance in combined reading comprehension skills based on the teaching strategy variable. The results are summarized in Table 6.

Table 6. Means and standard deviations of participants' performance in combined reading comprehension skills by teaching strategy

Group	No.	Pre-test		Pro-test	
		Mean*	Sd.	Mean*	Sd.
Experimental	20	12.45	4.54	25.10	4.66
Control	20	12.80	7.35	17.65	5.84
Total	**20**	12.63	6.03	21.38	6.44

*Maximum score (30)

Table 6 shows that the post-test average performance of the experimental group (using the Classpoint tool) in combined reading comprehension skills is higher than that of the control group (using traditional methods).

To determine the statistical significance of these differences in post-test performance for combined reading comprehension skills, after controlling for pre-test performance, a one-way ANCOVA was conducted. The results are presented in Table 7.

Table 7. Results of one-way ANCOVA assessing statistical significance of differences in post-test performance in combined reading comprehension skills based on teaching strategy

Source	Sum of Squares	df	Mean Square	F	Sig.	ETA square
Pre-performance	126.947	1	126.947	5.032	0.031	0.120
Teaching strategy	539.066	1	539.066	21.369	0.000	0.366
Error	933.403	37	25.227			
Total	19891.000	40				
Adjusted total	1615.375	39				

The ANCOVA results in Table 7 indicate a statistically significant difference between the average post-test performance of the experimental and control groups in combined reading comprehension skills, attributed to the teaching strategy variable. The Eta squared value (0.366) suggests that the teaching strategy accounts for 36.6% of the variance in combined reading comprehension performance.

To further compare the average performance of the experimental and control groups, the adjusted means, standard deviations, and standard errors for combined reading comprehension skills before and after controlling for pre-test differences were calculated and are displayed in Table 8.

The results in Table 8 confirm a significant difference in the post-test performance of the experimental and control groups in combined reading comprehension skills, favoring the experimental group. Findings from both ANCOVA and variance analyses (Table 7) suggest that the use of the Classpoint tool significantly enhanced the experimental group's performance across combined reading comprehension skills.

Table 8. Means, standard deviations, and standard errors for experimental and control groups in combined reading comprehension skills before and after adjusting for pre-test differences

Group	Before modification		After modification	
	Mean	Standard deviation	Mean	Standard error
Experimental	25.10	4.66	25.05	1.123
Control	17.65	5.84	17.70	1.123

This section underscores the notable impact of the Classpoint tool on improving reading comprehension skills among non-native Arabic learners, supporting the value of integrating interactive digital tools in language learning. Further analysis on the specific aspects of comprehension skills affected could provide deeper insights into the tool's effectiveness across various reading competencies.

IV. Discussion

The findings of this study revealed that using the ClassPoint tool had a significant positive impact on enhancing reading comprehension skills among learners in the experimental group. This tool was found to improve reading comprehension through general text understanding, vocabulary acquisition, and deep comprehension of ideas. This improvement is attributed to the advanced interactive features offered by ClassPoint, such as multiple-choice questions, drag-and-drop activities, and short exercises that promote continuous interaction with reading texts. Through these activities, educators were able to present educational materials in an engaging and multi-dimensional manner, creating a dynamic learning environment that encouraged active participation from learners. For example, interactive activities helped foster direct engagement with texts, which are a critical factor in improving reading comprehension skills, especially in language learning contexts.

These results align with previous studies on the impact of interactive tools in increasing student engagement with educational content. In the study by AlAli *et al*. [35], it was confirmed that students experienced increased engagement and enjoyment when using ClassPoint's interactive features, thereby enhancing the effectiveness of the learning process. Additionally, educationalists [29, 36] noted that these tools contributed to increased student enthusiasm during educational activities, making content interaction more stimulating and motivating, ultimately supporting overall reading comprehension improvement.

Furthermore, ClassPoint's capability to simplify complex texts by dividing them into manageable short paragraphs played a substantial role in enhancing learners' comprehension of ideas and vocabulary. Breaking down content into small, manageable parts facilitated vocabulary acquisition and comprehension of ideas more effectively. This effective utilization aligns with the principles upheld by the Common European Framework of Reference for Languages (CEFR), which emphasizes easing learning and fostering effective interaction with content. Numerous studies [29, 30, 33, 35] support this idea, demonstrating that the use of ClassPoint aids boost reading comprehension and critical thinking skills, suggesting that integrating technology can be an effective approach to enhancing language learning.

The experimental group outperformed the control group due to the AI driven question generation function, in ClassPoint that sparks critical thinking in students. With this feature educators can create custom questions matching students proficiency levels to enhance their understanding of texts and foster critical thinking skills. This is supported by previous studies [32, 33, 35–39], which concluded that using questions aligned with learners' cognitive development enhances students' ability to tackle complex materials, leading to deeper text comprehension.

From the perspective of contemporary studies [33, 34, 36, 40–42], the marked improvement in reading comprehension among the experimental group may be attributed to ClassPoint's user-friendly interface, which is an important factor in increasing learners' engagement, including those facing language difficulties. This interface allowed them to participate confidently in educational activities without fear of making mistakes. In this context, educators [1, 30, 37, 43, 44] affirm that interactive tools with ease of use help reduce learners' anxiety, increase their willingness to participate, and boost motivation, thereby minimizing language learning-related concerns.

In light of the above, this study's findings generally highlight the positive effects of ClassPoint in improving reading comprehension skills among non-native Arabic-speaking learners. ClassPoint was found to be an effective tool that enhances students' ability to comprehend texts deeply by providing an interactive learning environment that supports reading comprehension skills through the integration of various techniques. ClassPoint stands out from traditional approaches due, to its level of engagement that allows students to engage actively in the learning journey via integrated textual tasks like quick surveys and interactive queries along with live idea sharing functions. Educators have observed that this form of interaction plays a role, in improving students' concentration and attentiveness which ultimately leads to information retention. By engaging in these hands-on tasks and exercises students have the opportunity to enhance their understanding of text at levels—interpretations, inferential reasoning and critical analysis. This holistic approach nurtures their capacity to engage with written material creatively and thoughtfully.

Additionally, ClassPoint enhances interaction between students and teachers by providing educators with the necessary tools to monitor student performance in real time, enabling them to provide immediate and personalized support. This real-time interaction helps adjust teaching strategies based on individual student needs, thus enhancing learning effectiveness. Moreover, ClassPoint's integrated activities allow students to practice reading comprehension skills on multiple levels, including literal, inferential, and critical understanding, enabling them to delve deeper into texts compared to traditional methods. In this scenario, educationalists suggest that by engaging in a variety of activities, such as those mentioned by Al Barakat & AlAli [9] and AlAli *et al*. [1], pupils can delve deeper into text analysis and improve their critical thinking abilities. This process aids increase their ability to grasp thoughts and effectively use them across different settings.

V. Conclusions, Educational Implications, and Recommendations

This study provides valuable insights into the impact of the ClassPoint tool in contemporary educational environments, emphasizing the growing role of technology in enhancing teaching and learning methods. The results demonstrate that the use of ClassPoint is not merely an optional interactive tool but a central element that significantly contributes to improving student engagement with educational content and deepening their understanding, especially for non-Arabic-speaking students. By integrating interactive activities such as drag-and-drop, multiple-choice questions, and live polls, ClassPoint allows teachers to design lessons centered on active student interaction, which increases student engagement in the learning process and promotes

deeper interaction with the subject matter. Continuous engagement and interaction is crucial for establishing a learning atmosphere that nurtures students reading comprehension abilities and fosters self-confidence in learning. Additionally, the user-friendly design of ClassPoint helps reduce language related anxieties and empowers students to participate confidently despite language barriers they may encounter. This boosts their motivation to actively engage with tasks and ensures a supportive and relaxed learning environment.

ClassPoint also stands out for its ability to provide immediate feedback to both students and teachers. Teachers can use it to keep track of how students are doing all the time and figure out what they're good, at and where they might struggle so they can give them the help they need individually. The quick feedback feature helps students assess themselves and come up with ways to learn which helps them do better in school overall. On top of that the tools AI can make questions that challenge students to think critically by matching the questions to their skill levels and encouraging them to analyze and think deeply. This highlights the value of ClassPoint as an effective tool for improving reading comprehension and higher-order thinking skills, aligning with contemporary educational principles that aim to empower learners with skills to analyze and understand texts in multiple ways. With these features, the study indicates the importance of integrating modern technological tools like ClassPoint in education to enhance learning outcomes and create a more interactive and diverse learning experience that meets the varied needs of students in contemporary learning environments.

Based on the study's results and conclusions, it is recommended that educational institutions adopt ClassPoint as a key tool in language teaching, particularly for non-Arabic-speaking learners. To maximize the benefits of the tool, institutions should offer comprehensive training programs for teachers to support its effective integration into diverse educational settings. These programs should cover practical implementation strategies, focusing on increasing student interaction, motivation, and engagement with educational content. Additionally, some practical recommendations can be made to provide teachers with effective strategies for applying ClassPoint in various learning environments:

Adopt digital tools to enhance interaction: Educational institutions should integrate ClassPoint into Arabic language teaching programs for non-native speakers, providing the necessary resources and support. This tool helps create an interactive and engaging learning environment that combines enjoyment with effective learning, helping to maintain student attention and motivation.

Encourage regular use of ClassPoint by Teachers: Language teachers should consistently incorporate ClassPoint into their teaching practices, using its tools to design interactive lessons, conduct short assessments, and implement group activities. Regular use will contribute to the integrated development of students' reading, writing, listening, and speaking skills.

Provide specialized training: Schools should organize workshops and training sessions specifically designed for teaching non-native speakers. These sessions should cover both the technical and pedagogical aspects of ClassPoint, including strategies to encourage student participation, enhance self-directed learning, and effectively apply the tool's features to enrich language teaching.

Incorporate a variety of interactive activities: Language teaching programs should include a diverse range of interactive activities using ClassPoint, such as educational videos, simulations, and educational games. These varied activities will enhance student interaction, enabling them to apply linguistic concepts practically in a dynamic environment.

Based on the above, and considering the importance of utilizing Classpoint in language skills, it is essential to recommend that this tool can be adapted not only for reading comprehension but also as an educational resource for teaching writing, listening, and speaking skills through the design of interactive activities that enhance interaction between students and teachers. Regarding writing skills, it is recommended to use the tool to provide instant feedback on written texts and organize group review sessions, which will help improve students' writing skills. For listening skills, it is suggested to upload audio clips and educational videos on Classpoint, along with interactive quizzes to analyze and understand the audio content, in addition to organizing post-listening discussions to deepen comprehension. For speaking skills, it is recommended to design simulated activities and live video discussions to motivate students to practice speaking in interactive contexts. Adapting Classpoint in this way will contribute to enhancing interaction and inclusivity in learning, leading to improved student proficiency in various language skills through an innovative learning environment.

VI. Limitations and Future Research Directions

Many limitations and applicable factors constrain the generalizability of the study's results. The research focused on non-native Arabic language learners enrolled in two groups (experimental and control) at the Language Center of Yarmouk University in Jordan. This geographic focus may lead to limited applicability of the findings to other categories, such as learners in different educational institutions or in other countries. Diverse cultural and social factors in different educational contexts may affect the effectiveness of the teaching strategies used, making it necessary to expand the research to include diverse population groups.

The study did not employ qualitative research, focusing solely on quantitative research through a reading test, with no use of interviews, focus groups, or classroom observations to assess student performance in the context of using ClassPoint. While these qualitative insights provide a deeper understanding of learners' experiences, they may also introduce an element of subjectivity, limiting the potential to generalize the findings across different educational contexts. Utilizing qualitative research tools can reveal individual experiences and challenges faced by learners, thereby enhancing our comprehensive understanding of learning and teaching processes.

Future research should address these limitations by exploring a broader range of population groups, including diverse educational institutions and the demographic diversity of learners. In the future research endeavors should consider including participants from cultural and social backgrounds to achieve more precise and thorough findings. By increasing the number of participants and integrating studies into the research design we can improve our understanding of how teaching strategies impact reading comprehension in the run. Longitudinal studies will allow us to monitor the progression of reading comprehension abilities over time offering insights, into the lasting effects of teaching approaches.

In addition, to that point of view future studies could gain from using a combination of research methods to investigate how well different evaluation tools gauge reading comprehension skills. This involves incorporating discussions, group discussions and classroom assessments in addition to tests which will present an overview of student performance. Moreover, qualitative research focuses on students' encounters and opinions regarding the incorporation of technology, like ClassPoint will enhance the data and offer beneficial perspectives for teachers. Enhancing teaching methods to meet the needs of learners through an understanding of student interactions, with technology.

Finally, understanding how cultural variances and educational regulations influence the success of reading comprehension methods will enhance our knowledge of aiding non-native Arabic learners effectively Ultimately these factors significantly affect how learners engage with and absorb information. Through these efforts, significant improvements can be achieved in education, supporting the learning of Arabic for this demographic, ultimately contributing to building a better and more inclusive educational future.

Conflict of Interest

The authors declare that there is no conflict of interest.

Author Contributions

R.M.A. and A.A.A.-B. conceptualized the manuscript's focus, proposed the aims, prepared the draft manuscript, and wrote all the sections. M.F.H and M.M.B.K collected, analyzed, and interpreted the data. R.M.A. and A.A.A.-B. were major contributors to writing the manuscript. All authors read and approved the final version of the manuscript.

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