

The Impact of Scaffolding Strategies in Enhancing Reading Comprehension Skills of University Students in a Saudi Context

Arwa Abdullah AbdulRahman Al Eissa

English Language Institute, King Abdulaziz University

PO Box 80200, Jeddah, 21589, Jeddah, Saudi Arabia

E-mail: arwaaleissa@gmail.com

Abdullah Al-Bargi

English Language Institute, King Abdulaziz University

PO Box 80200, Jeddah, 21589, Jeddah, Saudi Arabia

E-mail: aalbargi@kau.edu.sa

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Abstract

Based on a mixed method research design, this study aims to investigate the effectiveness of applying scaffolding strategies in enhancing reading comprehension skills of female students at King Abdulaziz University in the city of Jeddah in Saudi Arabia. The participants of the study were thirty-three female students at the preparatory year program (PYP) who were registered at the proficiency level 104 (B1/Threshold level on the Common European Framework of reference for language; CEFR). They were divided into two groups: Seventeen students in the control group and sixteen students in the experimental group. Both groups were exposed to the same reading lessons but with the experimental group exposed to scaffolding strategies. Prior to the treatment, a pretest was administered to both groups. Once the treatment was accomplished, a posttest was administered to investigate the effect of applying scaffolding strategies on developing reading comprehension skills. Furthermore, qualitative data was collected via open-ended questionnaire. The results of the study indicated that there was a statistically significant difference between the pretest and posttest of the experimental group in favor of the posttest. Furthermore, students showed a positive attitude to the scaffolding technique as a

motivation factor to their learning. Conclusions and recommendations for further research are given at the end of this study.

Keywords: scaffolding strategies, reading comprehension skills, B1-level students, King Abdulaziz University

1. Introduction

English has become the leading language of communication and an important job requirement. According to Mahboob and Elyaz (2014), English has an economic value in Saudi Arabia, so learning English has become crucial in the education system. As a result, the Saudi Ministry of Education has implemented English learning at early stages (Al-Yami, 2008). However, in the Saudi context, English is taught as a foreign language, so it is rare for students to get exposed to the foreign language or to practice the language out of the classroom. Therefore, it is essential for a teacher to make the classroom like a small community and to create situations where students communicate with each other in the target language.

1.1 Statement of the Problem

In order to speak a foreign language, students need to be exposed to receptive skills and sufficient input either by listening or reading. Reading involves blending various skills and processes which helps in developing other language skills such as writing and speaking (Al-Mansour, 2014). Due to the fact that reading in a second language (L2) is highly complicated for second language learners (Al-Araj, 2015), students usually encounter many hitches and perceive their language course materials as difficult especially when it comes to reading (Al-Thiyabi & Al-Bargi, 2015). Thus, to encourage learners to overcome their inadequate reading skills and to learn the key strategies needed to master the reading skill, it is advisable to implement the scaffolding pedagogical strategy in order to elevate students' level and success in Language learning. Scaffolded reading experiences are especially important for English language learners because reading in a new language may involve more complexity than native language reading. So, there is a need to conduct the present study in King Abdulaziz University at the English Learning Institute (ELI), aiming at examining the effects of scaffolding on improving reading comprehension among students as well as exploring students' perception towards scaffolding strategies.

1.2 Significance of the Study:

English teachers strive to provide their students with the best methodologies to reach their ultimate goal. However, in teaching reading, teachers might encounter some reluctant students. Many empirical studies have proven the effectiveness of implementing scaffolding to develop students' level in different language skills (Al-Yami, 2008). However, scaffolding as it pertains to reading comprehension, remains under-researched in the Saudi context. The present study is important for three reasons. First, it provides teachers with a better understanding of scaffolding in order to adopt it in their teaching. Second, it helps students become better readers and gain more knowledge on how to approach a reading text. Finally, it helps students enjoy reading classes and attain positive attitude towards reading.

1.3 Research Questions:

The present study sought answers to the following three questions:

RQ1: What is the effect of the applied scaffolding strategies in enhancing reading comprehension skills of university students in a Saudi context?

RQ2: What attitudes do students have towards implementing scaffolding strategies?

RQ3: Which scaffolding strategy do students find most helpful?

2. Literature review

2.1 Scaffolding

Scaffolding, as known architecturally, is a temporary platform placed around newly constructed building or repaired one to provide a secured working environment and suitable heights for worker to aid the construction process. In education, the use of term scaffolding can be attributed to Wood, Bruner and Ross (1976) who explain that scaffolding as a parent child teaching relationship. In addition, Wood et al., (1976) provided the definition of scaffolding as a technique that enables a “novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts” (p.90). Graves and Fitzgerald (2003) extended the definition of scaffolding stating that “scaffolding enables students to accomplish a task that would be impossible without the scaffold or enables them to accomplish a task more fully or more easily than they could without the scaffold” (p.69). Hence, Scaffolding refers to the assistance and support for teachers that is designed to help learners move towards new skills, concepts or understandings. Such support is gradually withdrawn when learners progressively manage to take over and become more independent, however, this does not mean that tutors will not provide continuous future support when required (Al-Yami, 2008; Gibbons, 2002; Hammond, 2001).

Hammond and Gibbons (2005), described scaffolding as a “combination of the pre-planned and the contingent that enables teachers to provide new learning challenges for their students, while at the same time providing necessary support for meeting those challenges” (p.11). Therefore, successful scaffolding does not only rely on applying generalized strategies on daily basis, but on how teachers plan to support their students and how they handle specific situations that require ongoing scaffolding.

2.1.1 Scaffolding Functions and Pedagogical Aspects

The main function of scaffolding is the supporting-up of students to develop them in the learning process. This support is required to transfer skills for students and to provide them with the confidence to become more autonomous (Hammond, 2001). In this context, Wood et al. (1976) proposed six “scaffolding functions” for effective instructional tutoring. First, *recruitment* means that getting the students interested and focused in the task. Second, *reduction in degrees of freedom* which means placing the task within the student’s level by dividing it into manageable chunks during the skill acquisition. Third, *direction maintenance* that is to keep students focused and motivated on the task and ready to take risks for more challenging tasks. Moreover, *marking critical features* which emphasizes on certain features of the task that are relevant. This emphasis provides discrepancy between the student’s production and what they would recognize as a correct production. His task is to interpret discrepancies. Furthermore, *frustration control* which means that scaffolding students helps in turning problem solving into a non-threatening procedure. It helps students develop skills by the support provided from the teacher but no by depending on teachers to provide them

with answers. Finally, *demonstration*: modeling solutions to a task in idealized way in which learners will later on imitate in a more appropriate form. Due to the fact that tasks must be designed as interesting and challenging to keep learners engrossed and motivated, Van Lier (2004) documented six significant pedagogical features of scaffolding; *continuity* refers to repetition of tasks with modification and assuring that they are linked to each other, *contextual support* refers to encouraging students to explore while providing a supportive and non-threatening environment, *intersubjectivity* refers to mutual interaction and establishing rapport, *contingency* which means that task procedures are adjusted depending on the actions of learners; contributions and utterances are oriented towards each other and may be co-constructed, *handover/takeover* which means the role of the learner increases according to the increasing of skill and confidence, and *flow* meaning that skills and challenges are in balance; participants are focused on the task and are ‘in tune’ with each other.

The above-mentioned scaffolding features are contingent, collaborative, and interactive. These features help in elevating students in order to become more capable of managing the task by their own in the future, so it is advisable for teachers to scaffold their students to achieve better results.

2.1.2 Theoretical Framework Underpinning Scaffolding

Scaffolding can be always traced back to Vygotsky’s sociocultural theory and the zone of proximal development notion (ZPD) Vygotsky (1978). According to the sociocultural theory, learning is both mentally and socially mediated. Moreover, language learners are more likely to succeed in learning when they interact with instructors, peers and community associates (Kim, 2010). It views the developments of human as “social rather than individualistic” (Gibbons, 2002). Language learners are less knowledgeable than their teachers; therefore, they require constant guidance through other-regulation from a skillful person who is self-regulated (Mitchell & Myles, 2004). The association of ZPD and scaffolding is demonstrated in the case of a learner who is unable of performing a certain task autonomously but needs an expert’s support to achieve the desired task (Sabet, Tahriri, & Pasand, 2013). The role of the expert is not limited to certain strategies of supporting but it varies accordingly (i.e. motivating, modeling, asking questions, providing hints and prompts etc.).

2.2 Scaffolding Reading Comprehension

Gibbons (2002) suggest that in designing activities to scaffold students in reading comprehension, it is important to consider the purpose of the activities. That is to say, activities should revolve around two major functions; helping students understand reading texts and developing good reading strategies that would help them in reading other texts. This will help develop reading comprehension skills among students and aid them to be better-equipped future readers. The next section provides some of such strategies.

2.2.1 Scaffolding Strategies

In the present study, the researcher selected six main scaffolding strategies which were found beneficial by previous empirical studies in the literature and were suitable for English as

Foreign Language (EFL) and English as a Second Language (ESL) students. The selected strategies were embedded in an instructional framework divided into pre-reading, during-reading, and post-reading activities.

2.2.1.1 Scaffolding Through Modeling and Think-Aloud

Think-aloud method is an instructional approach in which a teacher models comprehension strategies for students by verbally explaining the thinking process in order to make particular connections, predicting, drawing inferences etc. (Smith, 2006; Walqui, 2006). Therefore, teacher's speech and external thinking are both effective scaffolding tools in teaching that would support students in better comprehension in reading sessions. Safadi and Rababah, (2012) suggests that modeling thinking aloud processes are appealing to students and promote interaction in classrooms. Additionally, Obeid, (2010) argues that the use of think-aloud techniques help students acquire a wide variety of strategies which enhances their understanding before, during, and after the reading task and helps them overcome difficulties.

2.2.1.2 Scaffolding Through Activating Prior Knowledge

When encountering a text in a different language, students need to employ their schemata (prior knowledge) to acknowledge what they have read and fit it into what they already know (Harmer, 2001). Cummins (2009) argue that "prior knowledge is the foundation of learning" (p. 1), for it facilitates learning and helps students apprehend L2 through decreasing the "cognitive load of the text". Activating prior knowledge can be done in many ways i.e., the use of visuals, make cultural and personal connections, ask students to predict etc. However, Al-Thiyabi and AlBargi (2015) argue that although utilizing students' background knowledge is a very effective scaffolding strategy, yet, ELI instructors in EFL classrooms rarely use it. Therefore, there is an urge to enlighten teachers with the importance of implementing such strategy to facilitate the reading texts.

2.2.1.3 Scaffolding Through the Use of Questioning

Questioning or "self-generated questions" is defined by Taboada (2003) as "questions that are self-initiated and posed by the student in reference to a text, topic or knowledge domain" (p.28). 'Self-generated questioning' is found as effective strategy for improving reading comprehension (Schirmer and McGough, 2005). However, it is not sufficient to just tell students to create their own questions but it is important to train them in how to create their own questions on the text which positively affect their understanding and recalling of information in the texts (Janssen, 2002).

2.2.1.4 Scaffolding Through the Use of Bridging and Building Connections

Bridging helps students link between what they read in text and their lives and it has a significant facilitating role on reading comprehension (Chi, 2007). This connection building is achieved in several ways; through encouraging students to connect their own experience in certain situation or to what they have learned from another different subject. Thus, it is important for student to realize that what they read is not just only words but are feelings

written by other people just like them and that they can benefit and learn from what they read (Fitzgerald & Graves, 2005; Graves & Graves & Braaten, 1996).

2.2.1.5 Scaffolding Through the Use of Visualizing

Visualizing or “Mental Imagery” as described by Schirmer and McGough (2005) as a strategy that relies on forming mental images while reading. It involves “asking readers to construct a visual or spatial representation of what they are reading” (p.103). It can be used before, while, and/or after reading and it has proven to be a useful strategy in improving reading comprehension with EFL/ESL learners (Erfani, Iranmehr, & Davari, 2011). Ghazanfari (2011) believes that visualizations play a great role in improving reading comprehension and students should be supported to utilize such strategy.

2.2.1.6 Scaffolding Through the Use of Graphic Organizers

Graphic organizers are learning tools that aid “students in their attempts to establish relevant connections regarding the acquisition of knowledge” (Gil-García & Villegas, 2003, p.2). They are used to support students in predicting, organizing their ideas and information, recalling information, expanding their knowledge, comparing their background knowledge to information provided in the learning material, and better understanding their reading texts (Acosta & Ferri, 2010). There are many types of graphic organizers for example: hierarchical, conceptual, sequential, evaluative, relational, and cyclical (Gil-García & Villegas, 2003). Additionally, there is the K-W-L chart (Ogle 1986). Graphic organizers can be utilized in any of the reading stages namely, before the actual reading of the passage, during reading, and after reading. Acosta and Ferri (2010) concluded that students found using graphic designers during reading lessons as enjoyable and useful in remembering the topic and understanding it better. It also showed that the use of graphic designers motivated students to read and learn more.

2.2.2 Scaffolding Instructional Frameworks

The researcher followed the Scaffolded Reading Experience (SRE) framework to incorporate scaffolding throughout the reading sessions. The six main scaffolding strategies were incorporated in the selected framework along with any required activities. The researcher also adapted some the strategies applied in the Students and Teachers Actively Reading Text (START) framework

2.2.2.1 Scaffolded Reading Experience (SRE)

This framework is designed by (Graves et al., 1996; Graves & Graves 2003; Graves & Fitzgerald, 2003) to provide English language learner with activities and skills that helps them in reading comprehension.

SRE is divided into two main phases (Figure 1). The first phase is the planning which considers three important factors; the students, the reading selection, and the purpose of reading. To put it differently, the teacher’s planning will be always fluctuated depending on the three mentioned factors. Teachers consider students’ “needs, concerns, interests, strength,

weakness, background knowledge—anything that might influence their success (or failure) in reading a particular selection” (Graves, Juel & Graves, 1998, p.243).

The second phase is the application phase which is the result of the planning and were reading is divided into three parts. Each section includes number of activities that teachers can choose according to the needs of their students. The first section is ‘before-reading activity’ aims to prepare students to cope with the reading material by activating their prior knowledge. The section ‘during-reading activities’ aims to model good reading strategies which help students interact with a reading text. The third section ‘after-reading activities’ is to check that student grasped and comprehended the reading selection and to sometimes utilize the reading text as a tool for teaching other language study like grammar (Gibbons, 2002).

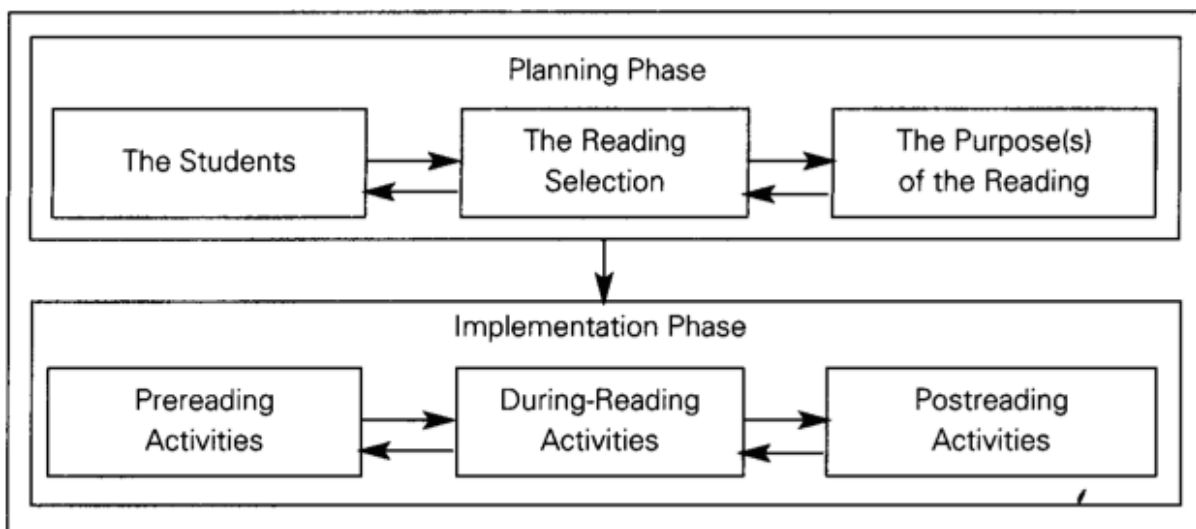


Figure 1. Phases of SRE

Sources: Graves, M. F., Juel, C., & Graves, B. B. (1998). *Teaching Reading in the 21st Century*. Order Processing, Allyn and Bacon, PO Box 11071, Des Moines, IA 50336-1071.

Each section was accompanied by a number of activities that service its purpose. Pre-reading activities serve as a hook for students to get engaged in the reading process prior to reading. Furthermore, they activate their prior knowledge and help students enjoy and manage difficult reading selections. It included activities such as activating or building background knowledge, building text-specific knowledge, relating the reading to students’ lives, pre-teaching vocabulary, pre-teaching concepts, pre-questioning, predicting, and setting direction, predicting, sequencing illustrations, reader questions, and storytelling in the mother tongue. During-reading activities included what both students and teachers do during the actual reading process once the pre-reading activities are accomplished. During-reading activities include silent reading, reading to students, modifying the text, modeled reading, rereading for detail, shadow reading, summarizing the text, and jigsaw reading. Post-reading activities are important and provide opportunities for second language student to recall

important information from the text. They also help students respond to the authors' message by reflecting or thinking critically. Post-reading activities include discussion, building connections, re-teaching, cartoon strip, story map, and hot seat.

It is worth mentioning that some of the previously mentioned activities are not limited to pre-reading, during-reading, and post reading stages but can be used in any stage according to the teachers' evaluation of students, situation and reading selection. It is crucial to enlighten students about the purpose of reading, let them ask themselves about the purpose of reading a particular passage, the kind of information they will get from it. By using SRE, activities are designed in accordance with the different levels of students, which might require different sets of activities that match different group of students.

2.2.2.2. Student and Teachers Actively Reading Text Framework (START)

Students and Teachers Actively Reading Text (START) is an instructional framework designed by Scharlach (2008) for the purpose of developing reading comprehension and providing teachers with an understandable classroom reading instruction. This framework helps improving students' comprehension through modeling and scaffolding eight metacognitive strategies and then gradually releasing responsibility to students to apply the strategies themselves. The eight scaffolding techniques are predicting/infering, visualizing, making connections, questioning, determining main idea, summarizing, checking prediction, and making judgments. What signifies this framework is the building up of strategies each session until by the eighth session, teacher will be scaffolding all eight strategies and trained student to complete 'Actively Reading Text' (ART) sheet. The Art sheet include completing statement like: In this chapter I think..., In my mind I see etc. Figure 2 explains how strategies are presented and what ART statements are used.

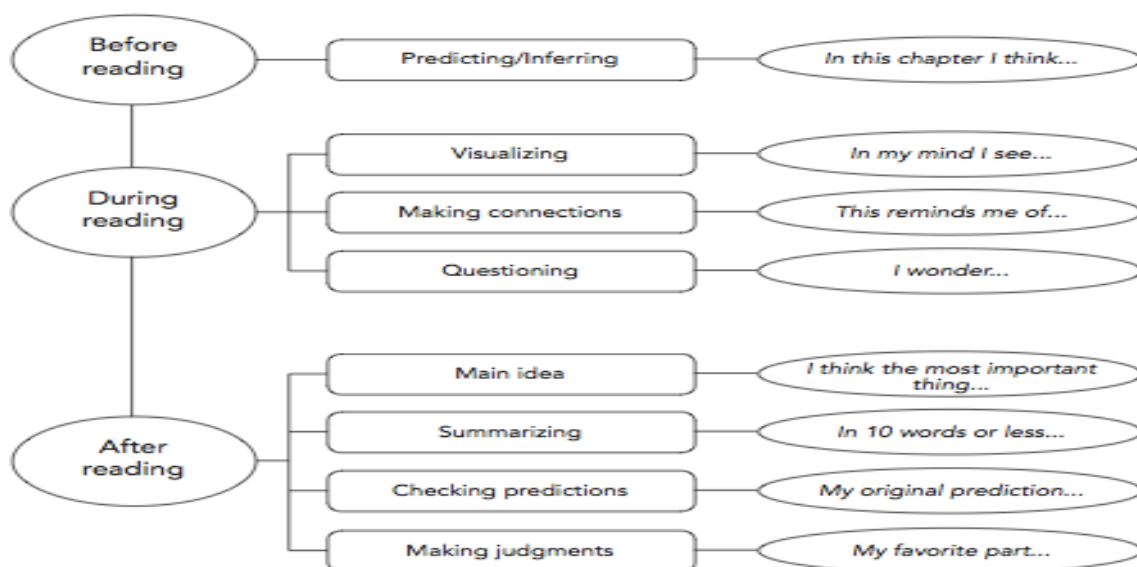


Figure 2. START Reading Strategies Diagram

Source: Scharlach, T. D. (2008). START comprehending: Students and teachers actively reading text. *The Reading Teacher*, 62(1), 20-31.

START differs from SRE in following a specific framework and strategies selection whereas SRE is a more flexible framework that includes numerous strategies and activities for teachers to choose from. While many studies such as Fournier & Graves (2002) reported that using SRE was effective, only Scharlach (2008) concluded that employing START framework was very effective.

2.3 Empirical Studies on Scaffolding

There are numerous studies that emphasize the effectiveness of utilizing scaffolding strategies in second language teaching. The researcher organized the below empirical studies in accordance to the age of the participants i.e., under the age of 17 and over the age of 17. This organization was done in accordance to age and not type of scaffolding because it was difficult to organizer studies in accordance with the type of strategy since that some empirical studies tackles more than one strategy in one study.

2.3.1 Studies of Students Under the Age of 17

Chi (2007) who investigated students' perception regarding the most effective scaffolding instructional strategies in Taiwan, reported that the most used strategy was offering explanation and it provided students with confidence. Moreover, Acosta and Ferri (2010) who examined activating background knowledge in reading comprehension classes and the use of graphic organizers, found that most students perceived activating prior knowledge as a very useful strategy that helped them in thinking more about the topic, generate ideas, and promote curiosity, and that graphic organizers were as enjoyable, interesting and important. In addition, Van Staden (2011), who examined the effect of scaffolding in improving the reading comprehension of students in South Africa, revealed that students extremely benefited from scaffolding strategies such as questioning, predicting, making inferences and summarizing.

Similarly, Pinzón and Anderson (2012), who studied the impact of using graphic organizers (GO) on reading comprehension and summarization in Bogota, concluded that GOs helped students in organizing, remembering, establishing connections between students' background knowledge and new information in the text, and in summarizing. Likewise, Safadi and Rababah (2012) who aimed at ascertaining the impact of scaffolding on reading comprehension skills, reported the positive effectiveness of scaffolding on the students' reading comprehension especially in vocabulary level. Furthermore, Bassiri (2012), who explored the impact of scaffolding on the reading comprehension and on Iranian students' motivation and attitude in regard to the gender, found out that the scaffolding group outperformed the non-scaffolding group and that female students outperformed male students in reading comprehension. In the same context, Al-Araj (2015) who investigated the impact of scaffolding think-aloud strategy on improving reading comprehension, showed that the treatment group grades improved while the control group grades showed very modest

increase. Also, Al-Jahwari and Al-Humaidi (2015) who investigated the perception of Omani teacher regarding activating prior knowledge to develop students' reading comprehension, reported that EFL Omani teachers believed in the effective role of prior knowledge however they had limited awareness in applying different techniques. Finally, Song (2015) who investigated the effect of scaffolding student-generated questioning in improving reading comprehension, revealed that students who received scaffolding showed significance in test results in favor of posttest and the teacher of scaffolding group believed that scaffolding was helpful in elevating her students' level of comprehension.

2.3.2 Studies of Students over the Age of 17

Attarzadeh (2011) reported a positive effect of scaffolding on Iranian students' reading comprehension. Also, Pishghadam and Ghardiri (2011) who investigated the effectiveness of two types of scaffolding, asymmetrical and symmetrical, in developing reading comprehension, showed that the asymmetrical scaffolding had a more effective impact in improving reading comprehension. Moreover, Kargar (2015) who studied the effect of scaffolding on Iranian EFL learner's reading comprehension proved that scaffolding had a positive significant effect on students' reading comprehension. Furthermore, Al-Thiyabi and Albargi (2015), who observed how ELI instructors at King Abdulaziz University (KAU) male campus used scaffolding in their classroom and how those strategies affected classroom interaction, revealed that ELI instructors used a number of strategies and that implementing scaffolding exerted positive impact on classroom interactions. The studies above demonstrated the effectiveness of implementing scaffolding in teaching reading at ESL/EFL classes. The mentioned studies showed that scaffolding helped improving reading comprehension skills, had a positive impact on students, and helped increasing classroom interaction. So, the present study aspires to fill in the gap in which – to the researcher's knowledge — no experimental studies were conducted at Kingdom of Saudi Arabia on that field.

3. Methodology and Procedure

This research was conducted research methodology with a mixed method. The study underwent two main phases sequentially. The first phase was the quasi-experimental phase in which quantitative data was collected. It implemented an “experimental” group and a “control” group to examine the effectiveness of using scaffolding strategies in improving students' reading comprehension skills. The second is a qualitative method in which students were given an open-ended questionnaire sheet to be answered.

3.1 Research Context and Participants

The Participants in the current study were 33 Saudi female preparatory-program students from the English Language Institute (ELI) at King AbdulAziz University in Jeddah in the academic year 2015/2016 , aged between 19 and 21. The sample was assigned into two groups; the experimental group consisted of 16 students and was exposed to the implementation of five main scaffolding strategies and to other scaffolding activities, and the control group consisted of 17 students who received the usual class procedure in teaching

reading with no extra scaffolding and were taught by their teacher. Both groups were pretested and a post-tested following the implementation of treatment for experimental group.

3.1.1 Instruments

Two instruments were implemented in the current study; pre/post tests and an open-ended questionnaire. A multiple choice pre-post-test was adopted from the achievement test taken from the teacher's version of the English Unlimited Special Edition (B1+/Threshold level CEFR) with modifications. The test consisted of an unseen reading passage (around 500 words) and ten multiple choice comprehension questions. The test was submitted to four experts in the field of education and testing and more modifications were made according to their comments. The open-ended questionnaire consisted of fifteen items, divided into four parts. The first part collected information regarding the previous reading background while the rest was divided into three main themes: 1) difference between the conventional and experimental way, 2) benefits students find in scaffolding, 3) students' perception towards scaffolding strategies.

3.1.2 Data Collection Procedure and Analysis

Quantitative data was collected during the fourth module of the academic year 2015/2016, prior to the qualitative data. The software package IBM SPSS statistics version 20.0 was used in data analysis. An independent samples t-tests were used to check if there was a significant difference between pre-test of both groups (Control, Experimental). A paired sample t-test was used to investigate any statistical differences between the results of the pre and post-test of each group. The alpha level for all analyses was set at .05 for tests of significance. For further investigation, Pearson's correlation was used to measure the strength and direction of association that exists between the pre and post-test for each group (Control, Experimental) of the study.

Qualitative data was collected via open-ended questions part of the questionnaire in order to enable participants to "share their views". It was collected from the students of the experimental group towards the end of the intervention for the purpose of investigating students' perspective regarding the treatment. The present study implemented thematic analysis for the qualitative data where the data was divided into themes and was hand coded as text segments. As such, word data was gathered and divided into group of sentences with a special theme. Additionally, students' privacy was respected and their identities were protected as were referred to as ST1, ST2, etc.

3.3 Treatment of the Study

The treatment was carried out by the researcher during the six weeks' period to have better control over variables. The researcher developed thirteen lesson plans from students' textbook that implemented scaffolding strategies to enhance reading comprehension skills. Students were exposed to scaffolded reading experience (SRE) where the reading passage is divided into three main domains; pre-reading, during-reading, and post-reading activities. Five main macro (designed-in) scaffolding strategies were included: 1) activating prior knowledge (schema); 2) questioning; 3) visualizing; 4) making connection (bridging); and 5)

graphic organizers. Additionally, students were exposed to extra reading activities and micro (interactional) scaffolding whenever required.

4. Data Analysis

4.1 Statistical Analysis of the Quantitative Data

Data analyses were conducted using the quantitative analysis software, IBS SPSS Statistics 23® (Statistical Package for the Social Sciences). In order to answer the first research question, statistical tests were carried out to test the difference between the grades of the controlled and experimental groups in reading comprehension test. Non-parametric statistical tests were used in order to achieve a high degree of accuracy when comparing the grades of the two groups due to the low number of participants (<30). Examining the differences in reading comprehension between the experimental group (exposed to the Scaffolding Strategies treatment) and controlled group encompassed two procedures. Kolmogorov-Smirnov and Shapiro-Wilk tests for normality were performed to ensure normal samples. Furthermore, the test results of the participants in the experimental group to the test results of the participants in the controlled group in the posttest. To check for significant differences, t-test was used. Independent samples t-test was applied to check if there was a significant difference between the pre-test of both groups (Control, Experimental), while paired samples t-test to determine whether there is a statistically significant difference between the pretest and posttest scores within each group (Control, Experimental). Furthermore, Pearson's correlation was used to measure the strength and direction of association that exists between the pre-test and post-test for each group (Control, Experimental) of the study.

4.1.1 Descriptive Statistics and Test of Normality

Table 4.1 shows that the mean of control group's pretest is (4.82) with standard deviation (1.63), while its post-test mean and standard deviations are (5.06) and (1.71) respectively. On the other hand, the mean of control group's pretest is (4.13) with standard deviation (1.20), while its post-test mean and standard deviations are (5.25) and (1.24) respectively

Table 4.1. Descriptive Statistics for control and experimental

Group		N	Minimum	Maximum	M	Std. Deviation
Control	pre-test	17	3.00	8.00	4.82	1.63
	post-test	17	2.00	7.00	5.06	1.71
Experimental	pre-test	16	1.00	6.00	4.13	1.20
	post-test	16	2.00	7.00	5.25	1.24

To show the normality of distributions, histograms are plotted illustrating grades distributions of each group (Control, Experimental) (Figure 3). As illustrated in the histograms, the bell curve indicates that the grades are normally distributed for both groups.

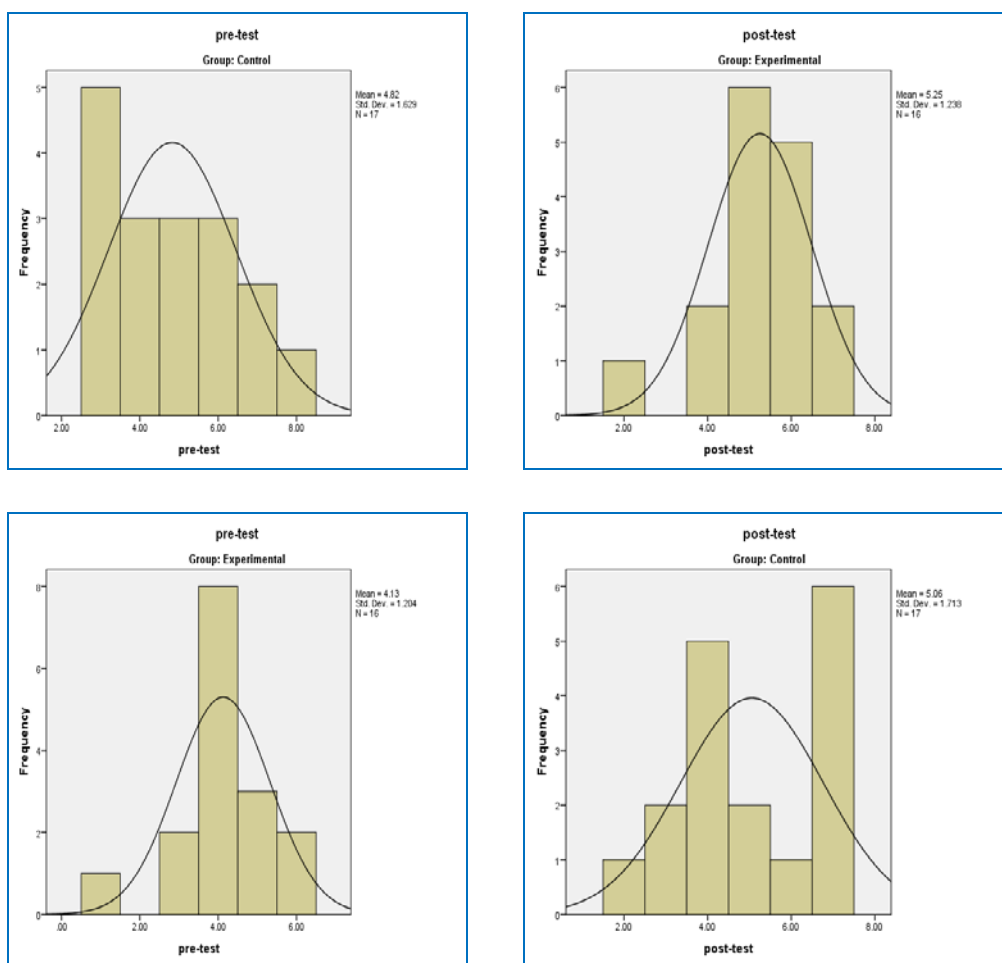


Figure 3. Histograms of pre/post tests of the experimental and control groups

Furthermore, the Kolmogorov-Smirnov and Shapiro-Wilk tests were run for both the control and experimental group to test the normality of the data. Table 4.2 illustrates that the data was normally distributed for each group, with a Shapiro-Wilk of $p > 0.05$. The result was highly significant except in the case of the control group in pre-test (0.200) which was lower bound of the true significance. Post-test of Control and Experimental groups is approximately normally distributed $p \geq 0.02$.

Table 4.2. Tests of Normality

Tests of Normality							
	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
pre-test	Control	.164	17	.200*	.903	17	.076
	Experimental	.271	16	.003	.873	16	.030
post-test	Control	.224	17	.023	.866	17	.019
	Experimental	.233	16	.021	.887	16	.051

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Figure 4 shows if there were any outliers in the data. The chart shows that no significant outliers were identified. That is, all grades are within range.

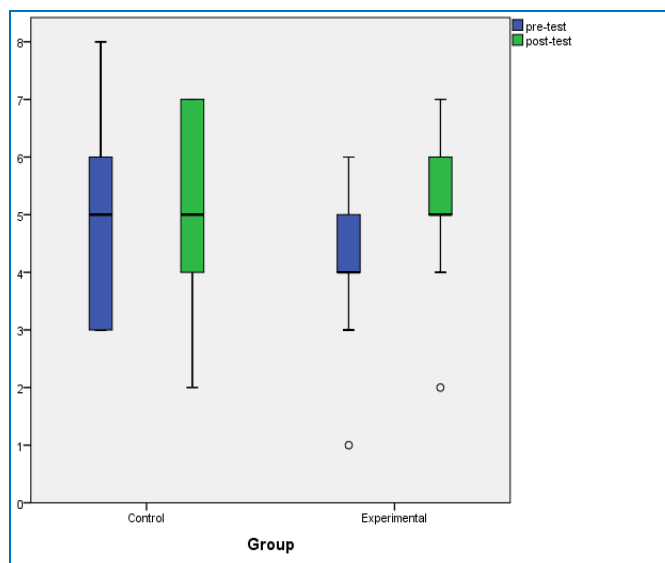


Figure 4. boxplot of pre-test and post-test for each group

4.1.2 Independent Sample t-test

The independent samples t-test was applied to check if there was a significant difference between the pre-test of both groups. Table 4.3 shows that the pre-test means of both control and experimental groups are 4.82, and 4.13 respectively, $p=0.173$ ($p < .05$). While, the post-test means of both control and experiment groups are 5.06, and 5.25 respectively. t-test was conducted and showed no significance, $p=0.717$ ($p < .05$).

Table 4.3. 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
pre-test	Equal variances assumed	3.650	.065	1.393	31	.173	.69853	.50134	-.32395	1.72101
	Equal variances not assumed			1.406	29.399	.170	.69853	.49676	-.31685	1.71391
post-test	Equal variances assumed	4.325	.046	-.365	31	.717	-.19118	.52319	-1.25823	.87587
	Equal variances not assumed			-.369	29.124	.715	-.19118	.51808	-1.25058	.86823

4.1.3 Paired Sample t-test

Table 4.4 and 4.5 and figure 5 shows that for the control group, t value for the difference between the mean of pre post test is not statistically significant $t(16) = -0.523$, $P = 0.608$ which indicates that there was no significant difference between the pre and posttest. While, for the experimental group, t value for the difference between the mean of pre post test is significant at 0.05 level $t(15) = -2.38$, $P = 0.031$.

Table 4.4. Paired Samples Statistics

Group			Mean	N	Std. Deviation	Std. Error Mean
Control	Pair 1	pre-test	4.8235	17	1.62924	.39515
		post-test	5.0588	17	1.71284	.41542
Experimental	Pair 1	pre-test	4.1250	16	1.20416	.30104
		post-test	5.2500	16	1.23828	.30957

Table 4.5. Paired Samples Test

Group			Paired Differences				t	df	Sig. (2-tailed)	
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower				Upper
Control	Pair 1	pre-test	-.2353	1.85504	.44991	-1.189	.71848	-.523	16	.608
		post-test								
Experimental	Pair 1	pre-test	-1.1250	1.89297	.47324	-2.134	-.11631	-2.377	15	.031
		post-test								

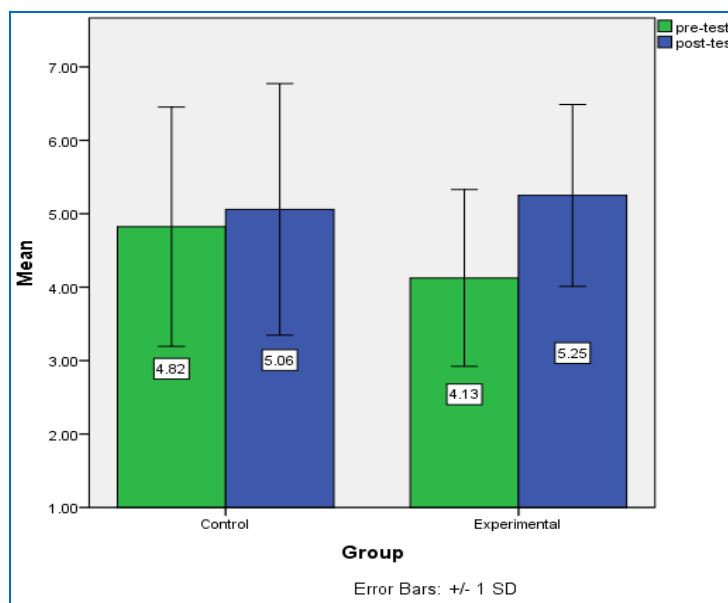


Figure 5. Groups and Mean average score of pre-test and post-test

4.1.4 Pearson's Correlation

Table 4.6 show Pearson's correlation between the pre-test and post-test. For the control group $r = 0.385$, $p = 0.127$, while for the experimental group, $r = -0.201$, and $p = 0.455$.

Table 4.6. The correlation

Paired Samples Correlations					
Group			N	Correlation	Sig.
Control	Pair 1	pre-test & post-test	17	.385	.127
Experimental	Pair 1	pre-test & post-test	16	-.201	.455

4.2 Analysis of the Qualitative Data

Analysis of the qualitative data indicated that students had positive attitude towards the application of scaffolding strategies to improve their reading comprehension. In short, all students agreed that there was a great difference in the usual way of teaching reading comprehension and the way they were taught during the experimental period. Additionally, students believed in the benefits of scaffolding and wanted to apply what they have learned in their future reading. Even low or same performance students found benefits and had positive attitude towards scaffolding. However, two strategies (schema and graphic organizers) were perceived ineffective by three students even though the other students did find them beneficial. Finally, the top choice strategy as the most beneficial was (questioning) and the least as most beneficial was (bridging) (table 4.7).

Table 4.7. Students' Choice of the Most Helpful Strategy

	Schema	Questioning	Bridging	Visualizing	Graphic organizer
ST1		✓	✓		✓
ST2		✓			
ST3		✓			
ST4	✓				
ST5			✓		
ST6		✓			
ST7		✓			✓
ST8		✓			✓
ST9	✓	✓			
ST10		✓			
ST11				✓	

ST12		✓			
ST13				✓	
ST14	✓			✓	
Frequency	3	9	2	3	3

5. Discussion and Conclusion

Results showed a statistical difference between the mean scores of the pretest and posttest of the experimental group. Thus, the first research question is answered and scaffolding strategies enhanced reading comprehension skills of Saudi university students. This result further supports previous studies that have investigated the effect of scaffolding strategies (i.e. Al-Aaraj, (2015); Sadafi and Rababah (2012); Kargar (2015); Attarzadeh, 2011; Bassiri, 2012; Chi's (2007); Jalilehvand, 2014; Kargar, 2015; Pishghadam and Ghardiri, 2011).

The second research question is designed to investigate students' attitudes towards implementing scaffolding strategies. The result showed that all students expressed their preference to the experimental way and that the strategies helped them in relating whatever they read to their lives, and that students perceived questioning strategy as useful in terms of recalling information, and focusing. This result mirrors several studies in literature such as: (Erfani, Iranmehr, & Davari, 2011; Ghazanfari, 2011; Schirmer & McGough, 2005). The third research question aimed to examine which scaffolding strategies were found more helpful by students. almost all students believed that all strategies were helpful. Questioning was regarded as the most beneficial strategy. Other strategies such as schema, visualizing, graphic organizers, and building connections or bridging were regarded as effective. On the other hand, graphic organizer was viewed as unhelpful strategy by one student, and as not preferable by another. This result further supports previous studies conducted by Van Staden 2011; Acosta & Ferri, 2010; Roa Pinzón & Edlund Anderson, 2012; Song, 2015.

5.1 Teacher's Insight Regarding the Implementation of Scaffolding Strategies

The researcher managed to create a positive environment in the classroom in which students were actively and confidently engaged. In addition, the researcher helped students develop a more autonomous, learner-centered approach to reading, and as a result, students were able to begin activities with less initial instruction. This helped create a flow in the lesson, and made it possible to focus on more advanced strategies, which gave room for deeper reflection. Overall, the researcher's reading instruction provided students with a valuable toolkit of resources on how to approach reading in the English language, which they can use as they progress through their studies.

5.2 Limitations

There are five limitation for the present study. This study is limited to female participants from ELI in King Abdulaziz University in Jeddah, to reading comprehension skill development, to

small sample size of participants, to the period of treatment, and to social restrictions that prevented the researcher from recording students.

5.3 Recommendations for Further Research

This study was limited to females and could be expanded to males to examine the impact on different gender. Furthermore, this study could be expanded to other language skills such as listening, speaking, and writing. It cannot be assumed that a sample of thirty-three participants could present a large population. Although the treatment group improved, yet, a longer period of time and larger sample could have demonstrated the great impact of scaffolding on students. Also, tape recorded interviews could have yielded into more detailed qualitative data, given the fact that people provide more information when talking rather than when writing.

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