The Effectiveness of Using Virtual Classrooms in Developing Elementary School Students' Language Achievement during the COVID-19 Pandemic

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ABSTRACT:

This study was aimed at investigating the effectiveness of virtual classrooms in developing Arabic language achievement of elementary school students in Saudi Arabia. Two approaches were used to achieve the objectives of the study; the analytical descriptive approach and the quasi-experimental design approach. The sample consisted of 30 third-grade students of Alkifah School in Alahsa for the second semester of the academic year 2020/2021. The participants formed one experimental group who received Arabic language instruction through virtual classrooms. Analysis of data showed a statistically significant difference at the level of (a=0.05) between the mean scores of the participants in the pre- language achievement test and post-test, in favor of the post-test. Thus, the study concluded the effectiveness of virtual classrooms in improving student's language achievement and recommended the use of virtual classrooms as part of the learning system.

Keywords: Effectiveness, Virtual classrooms, Language achievement, Arabic language, Elementary school

1. Introduction

Language is fundamental to our ability to communicate with the world around us, and it is a primary tool for students to learn and develop their cognitive and social skills (Manad, 2019). In the Arab world, Arabic language forms the foundation of school subjects for Arabic speaking students, and weak Arabic language skills can negatively affect the student's language and academic achievement. Therefore, elementary schools aim to provide students with essential skills in their first years of school. During that time, teachers direct their attention to develop students' linguistic and cognitive abilities, and help them learn concepts that are important for their mental development. This is because having strong language skills enables students to succeed in different areas of life (Alzwahrah, 2019). More

specifically, in the first year of elementary school, Arabic language instruction focuses on age-appropriate language skills with emphasis on speaking and writing as they help achieve a balance in the development of their literacy skills (Ammar, 2002).

The 21st century has witnessed tremendous advances in communications and information technology in general, and in educational technology in particular. These developments are still evolving rapidly, turning the world into a global village. As a result, educators are required to adapt their teaching methods to meet the demands put upon education in today's world of constant changings. Technology enabled online learning to become widely implemented as it can be facilitated from anywhere and anytime, allowing continuous learning, self-learning and to

have access to the whole world. It is conducted in many forms and utilizes electronic and digital resources to maintain communication between teachers, learners, and schools. Presently, virtual classrooms became one of the popular tools used for e-learning which can be accessed by teachers and learners via the internet.

As mentioned before, the transition to online learning was in response to the significant modern challenges posed on education, becoming the main venue of communication and a source of knowledge and information. With the ongoing COVID-19 pandemic, schools around the world were closed and undergone a sudden shift to e-learning to replace the traditional classroom environment as a preventative measure to the spread of the virus. Accordingly, educational institutions in the Kingdome of Saudi Arabia responded to this emergency by following protective procedures recommended by health competent authorities. The ministry of education announced attendance suspension in all public and private educational facilities, effective March 8, 2020. This decision led to the beginning of distance education and activation of e-learning platforms including the unified education system, and iEN Satellite TV Lessons. The ministry offered multiple options for students to reach educational material, and provided a number of electronic platforms that support synchronous and asynchronous virtual classrooms.

That way, virtual classrooms are used for distance learning and they offer a highly interactive and safe environment for learners with real-life experiences that simulate traditional classes by using text, voice, and video to interact synchronously with their teachers and participate in group activities (Faris, 2015:3).

Previous studies emphasized the need to employ virtual classrooms in education because of their positive effect in building learners' knowledge allowing them to share their experiences through conversations and constructive discussions, helping them in concept and skill training, improving their performance, and enhancing their learning achievement (Alnajjar, 2014; Shoaib, 2016; Tammam, 2018; Althubaiti, 2018; Alzain,

2019). Others have also stressed the need for educational institutions to encourage teachers to implement virtual classrooms and try to find ways to overcome any difficulties that may hinder their use (Awad, Sorial, & Awad, 2020; Faris, 2015). Additionally, Rabi (2021) reported that students had highly positive attitudes towards the use of the virtual classroom (Microsoft Teams) for its multiple features during the COVID-19 pandemic and the lockdown which forced schools to implement e-learning as a substitute for face-to-face education.

Based on the findings of previous studies, it is evident that virtual classrooms have become a promising alternative to traditional classrooms due to their low cost, increased students' enrollments, accessibility to coursework from anywhere at any time, and for overcoming the obstacles standing in the way of teachers and students to meet face to face. Therefore, in an attempt to improve students' language skills, the researcher proposes the use of virtual classrooms in Arabic language instruction because of its potential to significantly improve learning. The present study will assess the efficacy of virtual classrooms as an e-learning tool to develop elementary school students' language achievement during the COVID-19 pandemic. Findings of this study will contribute to help educationalists to develop and support e-learning, facilitate its implementation in schools, and provide teachers with solutions to overcome the challenges of virtual classrooms.

1.2. Research questions

The purpose of the present study is to evaluate the effectiveness of virtual classrooms in developing elementary school students' language achievement by answering the following questions:

• What language skills are included in Units 6 and 7 of the Arabic Language textbook for third-grade elementary school students?

• How effective is the use of virtual classrooms in teaching the Arabic course in developing third-

grade elementary school students' language achievement?

2. Literature Review

2.1. Language achievement

Language is defined as "a structured system of spoken and written vocal symbols to which meaning is attributed, and used by people of a particular culture to communicate with each other, and express their needs and the needs of the community they live in" (Alnaqah, 2017:115). In the context of Arabic language, language achievement consists of four language skills; reading, writing, grammar, and mastering literary texts (Badran, 2009:27). In the present study, the researcher defines language achievement as the proficiency level of third-grade elementary school students in Arabic language through the use of virtual classrooms, and it is determined by the score that the student receives in the Arabic language skills test designed by the researcher.

The aim of Arabic language instruction in elementary school is to help students develop their reading and listening comprehension, writing and speaking, sentence structure and functions, sentence parsing and parsing marks, sentence formation and word order. Additionally, it aims at developing students' critical thinking skills, and achieving high levels of fluency (Alkhalifah, 2004:342). According to Madkour (2000: 294), teaching methods in Arabic instruction are mainly divided into deduction and induction methods. In the deduction method, the grammatical rule is presented first then followed by examples. This method is considered an easy and quick way for students to learn grammatical rules as it focuses their attention on memorization, however, it limits their ability to be creative. On the other hand, in the induction method, examples are presented and discussed first. Then students discover the rule and practice the language through exercises. This method is based on the five formal teaching steps presented by the German philosopher Herbert; preparation, presentation, association, generalization, and application.

2.2. Virtual classrooms

Helic (2002:322) defines virtual classrooms as special synchronous/asynchronous collaborative learning environments that provide all necessary tools for both tutors and learners to conduct learning sessions with highly sophisticated, adaptable, extensible and collaborative learning strategies. However, according to Albaghdadi (2011:11), virtual classrooms are tools, techniques, and software which can be accessed via the web, enabling the teacher to upload instructional material, lesson objectives and homework, and to communicate with students through various electronic media. They also enable students to have access to those lesson objectives, instructional material, and to engage in discussions, submit their homework, and to see the lesson plan and their test scores. In addition, Abdel Dayem and Nassar (2012:138) define it as an internet technology which creates a learning environment that is similar to the traditional classroom environment in which the teacher can deliver lessons through sound, picture, video clips, and writing. Auringer (2005, p36) states that virtual classrooms are a special synchronous/asynchronous collaborative training and working environments which are conducted over the web, and provide functionalities such as, voice over IP (VoIP), video conference, shared whiteboards, application screen sharing, live feedback, and archiving of classes as learning objects. In this current study, the researcher defines virtual classrooms as the electronic rooms that are connected to the internet and are provided by software programs such as (Zoom, Microsoft Teams, etc.) where teachers can host synchronous meetings with their students and provide them with lessons and activities. Those sessions can be recorded so that the present student can review them at any time, and for the student who missed the class to catch up.

2.2.1. Features and functions of virtual classrooms

Virtual classrooms include a number of features and functions which make them different than traditional classrooms:

• A digital whiteboard that the teacher can use for delivery of instructional material.

• Live sessions where teachers and students can have direct interaction through audio only or audio and video.

• File, application and program screen sharing between the teacher and students.

• A chat box which allows students to communicate throughout the session.

• Options for the teacher to have control over who joins or exits the virtual classroom, moderate student participation, and track students' course progress.

• Display material in the form of slides or educational videos.

• Breakout rooms to divide learners into small groups with audio and video to ensure immediate interaction from everyone at the same time, and allowing the teacher to have discussions with any group.

• Engage students with surveys, polls, or quizzes, and provide them with immediate feedback.

• Print, record audio and written lessons, and download options for reviewing at another time according to students' convenience (Almusa & Almubarak, 2005; Albaghdadi, 2011; Shaheen, 2016; Khalif, 2009; and Abdulraouf, 2015).

2.2.2. Importance of virtual classrooms in language teaching

Prensky (2006) believes that the importance of using virtual reality technologies in language teaching lies in the following reasons:

• Interactions: virtual classrooms provide high engagement and interaction between learners.

• Visualization and contextualization: Virtual classrooms provide learners with the possibility to create an unrealistic learning environment that is inexpensive and easy to access.

• Virtual classrooms allow learners to understand and learn about different cultures.

• Immersion: virtual classrooms provide learners a 3D environment which enhances the learners' engagement.

2.2.3. Components of virtual classrooms

Virtual classrooms include a number of components:

• the content provider interface includes presentation slides, white board, questions, motion video, image, the web page director, and group work activities.

• The learner interface includes an active window which has four different parts (Participants, lecture flow, evaluation, and file sharing), a chat box, live screen (for visual communication between the teacher and the students), the tool box, presentation screen tabs, and the presentation screen.

• The instructor interface allows the instructor to direct the virtual classroom, and it has an active window, a live screen, a tool box, presentation screen tabs, and the presentation screen.

• The management interface: This is used by the system operators of the virtual classroom software. Its capabilities are mainly divided into three parts: first, the name, the days, and the times of a course or lesson are prepared from this part. Second, an instructor for a lesson is clarified. Third, the learners and their lesson are clarified to the program.

• The recorded lessons Interface: lessons can be archived and this can be useful for learners to review their learning sessions or watch them if they missed a class, and useful for teachers if they teach the same course to multiple groups of students.

• The database: all of the instructors and learners' data, and the recorded lessons are stored in the database (Aydin and Volkan, 2006: 9-16).

2.2.4. A comparison between virtual classrooms and traditional classrooms

Table (1) shows the differences between the virtual and traditional classroom (Abdulaziz, 2015: 140-141)

Table 1: Virtual classrooms vs. traditional classrooms

Point of comparison	Virtual Classroom	Traditional Classroom
Interactivity	• Anxiety to participate is reduced. • Learning relies on digital technologies. • Expectations about participation vary. • Active listening continues throughout the session. • Discussions can be held at the same time or postponed.	• The level of anxiety varies at the beginning of students' participation. • Little to no use of the multimedia room in learning. • Interaction is lost after the session. • Listening without participating. • Student participation is limited. • Discussions take place at the same time.
Discussion	• It takes place over the internet through messaging. • Students constantly communicate with each other. • High- level thinking. • Increased anxiety during participation.	• Discussions are verbal. • Students' meetings are limited. • Discussions occur within the available time. • Limited time for brainstorming. • Students' impressions vary depending on the time available for discussions.
Teacher's sense of self-discipline	• The teacher's sense of self-discipline is reduced. • It is easy for students to ignore the teacher.	• The teacher has a high sense of leadership. • It is difficult for students to ignore the teacher.
Continuing to learn	• Stress to continue learning is high.	• Stress to continue learning is low.
Feedback	• Feedback is provided for each part of the task. • All students see each other's feedback. • Feedback is provided immediately and cannot be hidden. • Feedback is recorded.	• It becomes difficult to discuss the details, so the discussion remains general. • All students listen to the feedback. • feedback is verbal and visual. • Feedback cannot be recorded. • interaction does not happen at the same time.

	• The reaction to the feedback can be postponed. • Sometimes, a discussion is held after receiving the feedback.	• Sometimes, a discussion is held after receiving feedback.
Level of engagement in learning	• Motivation varies depending on the tone of the speaker. • Delivery of material changes according to students' engagement and interests.	• Engagement in learning varies depending on the general understanding of the topic. • Engagement in learning changes according to the nature of the discussion.

2.2.5. Teachers and students' roles in virtual classrooms

Teacher's role:

• To organize a comfortable, safe, and collaborative learning environment and establish the rules of conduct.

• Encourage learners to learn and participate in activities and provide them with feedback.

• Ask though-provoking questions and develop deep understanding and accept all answers right or wrong.

• Manage interaction and class discussion between the teacher and students and between students themselves.

• Identify lesson and course objectives which the teacher seeks to achieve.

• Provide students with assistance, academic guidance, and solutions to learning problems.

• Guide learners to additional online learning resources.

Student's role:

• Ability to use a computer.

• Ability to communicate in writing, audio and video if possible.

• Participate directly and indirectly with the teacher and other students.

• Send and share files with the teacher and other students.

• Follow the lessons and directions.

• Participate in different exercises, activities and projects.

• Participate in tasks and discussions by asking questions.

• Commit to learning through the resources provided by the teacher, seeing as they are carefully planned to focus on achieving the learning objectives, and use alternative resources only after the lesson as supplementary material.

2.2.6. Advantages and disadvantages of virtual classrooms

Advantages of virtual classrooms from the point of view of teachers:

• Enable teachers to provide students with the learning material.

• Enhance academic achievement.

• Lead to interaction and communication between students and teachers

Advantages of virtual classrooms from the point of view of students:

• Enable communication between students and teachers.

• Increase computer skills.

• Enable the integration of technology in education.

Disadvantages of virtual classrooms from the point of view of teachers:

• Technical problems during the live sessions.

• Require great effort.

• Students may get distracted and not pay attention.

Disadvantages of virtual classrooms from the point of view of students:

• Students are unable to join live sessions due to poor internet connection or lack of computers.

• Insufficient question and answers time between teachers and students.

• Lack of audio conversation between the teacher and the student.

In the current study, the researcher was able to overcome the challenges of virtual classroom, and that is by doing the following:

• provide computers with access to the internet to students who did not have devices at home.

• Familiarize students with the expected problems with using virtual classroom and how to overcome them.

• Utilize online tools to facilitate learning. For instance, the recording feature was helpful for students who missed a session so they can rewatch it at a later time.

• Maintain communication with students by allocating time for discussions and answering students' questions at the beginning and the end of each session.

2.3. Review of previous studies

Past studies investigated the effect of virtual classrooms in improving students' skills and academic achievement. For instance, an experimental-design study conducted by Shoaib (2016) aimed to investigate the effect of a synchronous/asynchronous virtual classroom model on the development of electronic educational games production skills of kindergarten students. An achievement test, an evaluation card of the produced electronic game software, and a directory to accessing virtual classrooms in the Blackboard education management system were used to collect the data. Results of the study revealed the effectiveness of using synchronous and asynchronous virtual classrooms in increasing kindergarten students' achievement in educational electronic games production. Virtual classrooms also had a positive effect on students' learning, specifically on the cognitive achievement of the content by allowing the students to participate and learn effectively, which in turn promotes self-learning. Similarly, Jawda (2017) conducted her study on students in the secondary level and used a programming skills test, and a programming skills performance observation card to collect data. 30 students were divided into two experimental groups, the first one received instruction through synchronous virtual classrooms supported by the electronic anchored learning, and the second one received instruction through asynchronous virtual classrooms supported by electronic anchored learning. Analysis of the results revealed that there was no statistically significant difference between the mean scores of the two groups in the programming skills test using Visual Basic.Net. On the other hand, there was a statistically significant difference between the mean scores of the two groups in the observation card, in favor of the first group. In light of these results, the study recommended the importance of implementing virtual classrooms supported by anchored e-learning in all school levels, and the need to train teachers to employ anchored e-learning and make use of educational videos and electronic mind maps in teaching programming in Visual Basic.net. Similarly, the study by Alzahrani and Allam (2020) investigated the effect of synchronous and asynchronous virtual classrooms

on the development of computer skills and achievement motivation among middle school students. 60 participants were assigned to two experimental groups. The researchers used 3 instruments to collect data, an achievement pretest-posttest which included 32 multiple-choice questions, and true or false questions, a skill performance observation card, and an achievement motivation scale. Results of the study revealed that there were statistically significant differences between the mean scores of both groups in the cognitive achievement pretest and posttest. Also, statistically significant differences were found at the level (0.05) between the mean scores of both groups in the posttest regarding the mode of course delivery, in favor of the asynchronous mode. Additionally, there were statistically significant differences between the mean scores of both groups in the post application of the observation card with regards to the mode of course delivery, in favor of the synchronous mode. The researchers concluded that it is important to integrate both modes of learning for maximum effectiveness. Alrifai and Alansari (2021) study aimed to investigate the effectiveness of using virtual classrooms in developing skills of designing and producing electronic achievement files among secondary school students. The study concluded that there was a statistically significant difference at the level of significance ($\alpha \leq 0.05$) between the mean scores of the experimental group students in the pre and post application of the achievement test in favor of the post-application. Results also revealed the availability of criteria for evaluating the quality of the electronic achievement file product by 75% or more among the students. Hassanin (2020) reported similar results with regard to the positive effect of using synchronous virtual classrooms in improving students' skills.

A number of studies examined the reality of using virtual classrooms and shed light on some of its challenges. In a descriptive study that aimed to explore the reality of using virtual classrooms from the point of view of teachers, Abu Kameel (2020) created and distributed a questionnaire to 379 male and female teachers in Gaza strip schools. Analysis of the results indicated that the

percentage of having the skills for using virtual classroom among teachers was (69.77%) and the relative weight of the importance of virtual classrooms from the teachers' point of view was (54.39%). Meanwhile, constant power outage ranked first on the list of virtual classroom challenges with a relative weight (93.46%), followed by poor internet connection services. Results also showed that there were statistically significant differences between males and females regarding virtual classroom challenges, in favor of females. Likewise, Alharbi and Tayeb (2020) conducted a comparative-descriptive design study which aimed to identify the reality of virtual classroom application in public schools in Makkah. A questionnaire was given to 80 male and female teachers. Analysis of the results indicated that the participants approval of the reality of using virtual classrooms was positive, but in turn it needs several requirements. Findings also showed that there were no statistically significant differences regarding the variables of (city, gender). There are many obstacles that hinder the usage of virtual classes, the most important of which are poor infrastructure in schools and lack of necessary equipment, lack of awareness (teacher, student, parents) in the field of educational technology, weak motivation of either teacher or student or both**.**

Other studies have also assessed the efficacy of virtual classrooms using different techniques and strategies. In his study, Ibrahim (2020) aimed to investigate the effect of using flipped classroom strategy in virtual classrooms on the achievement of elementary school students and their performance of web design skills. The study consisted of 60 participants divided into two experimental groups. The first group received instruction using the partially-flipped approach, while the second one by using the fully-flipped approach. A skill-related achievement test, and a practical performance observation card were used to collect data before and after the experiment. Findings of the study revealed the effectiveness of using the flipped classroom strategy in virtual classrooms to increase cognitive achievement and improve skill performance. However, there were no statistically significant differences between the

mean scores of the first group and the second one with regards to the flipped classroom approach in the achievement test. Alshehri (2021) aimed to identify the effect of different skill display sequence (whole-partial and partial-whole) in virtual classrooms on the cognitive achievement and programming skills of secondary school students. Results indicated that there were no statistically significant differences between the two groups in the achievement test, whereas there were statistically significant differences between the two groups in the performance observation card, in favor of the second group.

2.4. Summary of the literature review

As a result of the rapid growth of technology and advancements is learning systems, there seems to be a growing interest in the implementation of virtual classrooms in education. With the COVID-19 pandemic posing challenges, educational institutions undergone a shift from face-to-face education to distance learning.

Previous studies assessed the effectiveness of virtual classrooms on the development of academic achievement (Shoaib, 2016), (Jawda, 2017), (Ibrahim, 2020), (Hassanin, 2020), (Alzahrani and Allam, 2020), and (Alrifai and Alansari, 2021). Results of these studies indicated that using virtual classrooms in the learning process increased students' academic achievement, except for they study conducted by (Jawda, 2017) which showed no significant differences between the first experimental group (synchronous classroom supported by anchored e-learning) and the second one (asynchronous classroom supported by anchored e-learning) in the cognitive aspect of the Visual Basic.Net language programming skills. Similarly, results of the study by (Alshehri, 2021) revealed that there were no significant differences between the mean scores of participants in the first and second experimental group in the achievement test. Other studies addressed the use of virtual classrooms in university instruction, such as the study conducted by (Hassinin, 2020) who emphasized the importance of embracing e-learning and virtual classrooms and their application at all university

levels. Meanwhile, some studies focused on the reality of using virtual classrooms in public education, such as (Abu Kameel, 2020) and (Alharbi and Tayeb, 2020) that stressed the importance of developing and applying virtual classrooms and disseminating knowledge about it among community members. Also, they emphasized the need to implement integrated infrastructure services in schools, and try to encourage teachers and provide them with financial incentives to employ virtual classrooms.

Compared to previous studies, this current study has different variables represented by its topic which had not been previously documented in the literature   to the researcher's knowledge, especially at the elementary level in the Arabic language course in Saudi Arabia. The current study addresses the effectiveness of using virtual classrooms at a critical stage of the student learning journey. It is considered the foundation from where students learn the basic linguistic skills to read and write. Consequently, the researcher hopes that this present study will pave the way to more studies in the same context. The justification for this study, therefore, lies in the current situation which forced teachers and students to move from face-to-face learning to distance learning including virtual classrooms, so that the researcher can assess its efficacy in teaching Arabic to beginners. Additionally, there is at present a need to assess the effectiveness of virtual classrooms in the context of teaching Arabic language to third-grade elementary students due to scarcity of research in this context.

3. Methodology

Two approaches were used; descriptive and empirical. The descriptive approach was used to design the language skills list, whereas, the empirical approach was used to examine the effectiveness of the treatment.

3.1. Participants

The sample of the study consisted of 30 third-grade elementary school students in Alkifah

elementary school, who formed one experimental group due to the COVID-19 pandemic which prevented from dividing the students into two groups.

3.2. Instruments of data collection

The instruments that were employed to collect data in this study included the list of Arabic language skills, and the pre-and post-language achievement test.

3.2.1. Arabic Language skills list

Based on previous literature related to developing Arabic language achievement, and the third grade Arabic textbook, the researcher analyzed Unit 6 and 7 to extract, identify, and categorize a list of the essential Arabic language skills for third-grade students to learn. A group of 8 experts in syllabus design, Arabic language teaching, and Applied Linguistics reviewed the list to assess the skills which students need to learn at this stage. The approved list consisted of 13 main skills that include 40 sub-skills. The main skills are the glottal hard catch, the soft glottal catch, prolongation, reduplication, subjunctive mood, intensive forms, noun of instrument, tied "Ta", open "Ta", the shortened "Alif", "Ya" with dots, requesting, and the proper noun.

3.2.2. Pre- and post- achievement test

The researcher designed a test based on the instructional material of unit 6 and 7 from the Arabic textbook to collect the data. The test was reviewed by a group of 8 experts to validate the linguistic formation of its vocabulary, whether it meets the learning goals and matches third-grade students competency levels. Participants were required to answer 40 multiple-choice questions within 50 minutes to assess their language achievement. The test evaluation was used to determine the efficiency of using of virtual classrooms.

The test was piloted on 30 third-grade elementary school students who were not participants in this study to test the internal reliability of the instrument. Correlation coefficient between the vocabularies of the test and the overall score was found to be positive at the level 0.05 and 0.01 which indicated a high level of internal consistency for the test. Moreover, the split-halves technique was used to ensure test reliability. The reliability coefficient for unit 6 and unit 7 were 0.78 and 0.79 respectively. In addition to that, difficulty, ease, and discrimination indices were calculated for the test. In unit 6, the ease index ranged from 0.312 to 0.67 which is considered moderately easy, difficulty index ranged from 0.33 and 0.688 which is considered moderately difficult, and the discrimination index ranged from 0.354 to 0.732 which is considered moderate as well. As for unit 7, the ease index ranged from 0.293 to 0.723 which is considered moderately easy, difficulty index ranged from 0.43 and 0.707 which is considered moderately difficult, and the discrimination index ranged from 0.426 to 0.832 which is considered moderate as well.

3.3. Data analysis

The results of the language achievement pre- and post-test were analyzed by using Statistical Package for Social Science (SPSS). A paired sample t-test was used to compare the differences between students' scores in the language achievement tests taken before and after the experiment. Other statistical procedures included a reliability coefficient to determine the internal consistency of the test, a difficulty index, a discrimination index, and split-half testing to measure test reliability.

3.4. The intervention procedure

Figure 1: Lesson plan of the virtual classroom
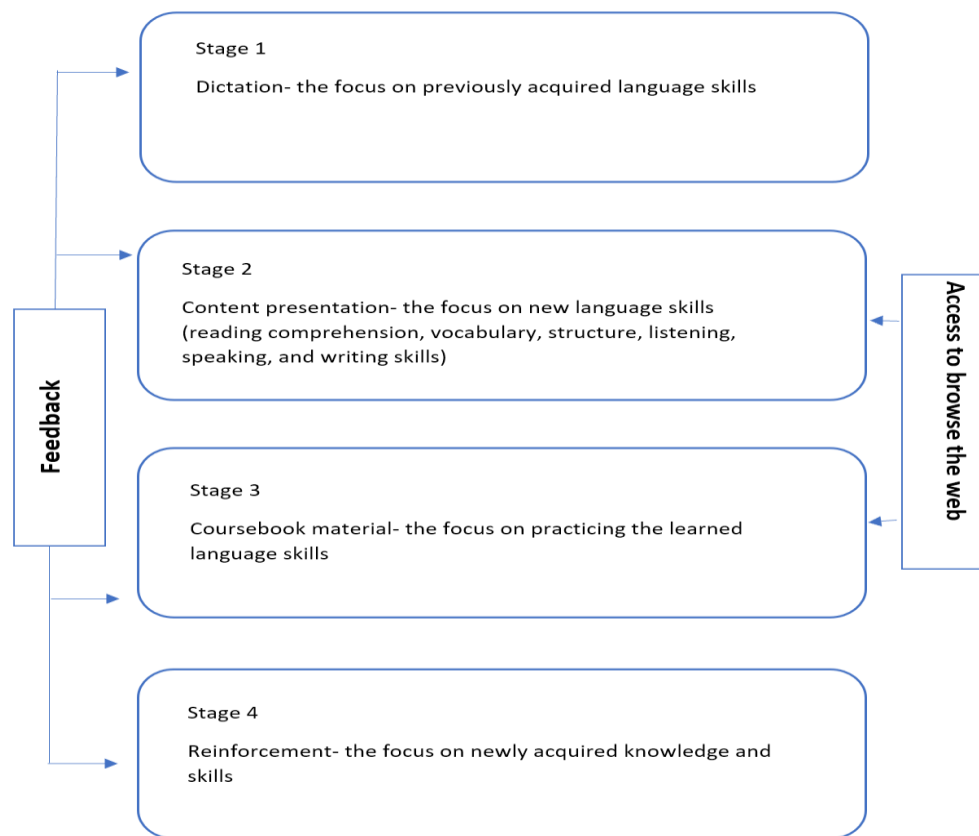
A language achievement pre-test was administered at the beginning of the experiment. Thereafter, the experimental group were taught through virtual classrooms and by the help of online tools. The third-grade language course included reading comprehension, vocabulary, structure, listening, speaking, and writing skills. To practice these skills, students participated in different activities, such as language skill mastery, high-order thinking skills, and interactive activities. Learning activities involved students working individually, in pairs, or in groups to achieve the learning objectives. The teacher incorporated effective strategies to ensure that all students are engaged in the learning experience. Each lesson started with dictation of the words learned in the previous lesson involving a particular writing skill and listening skills. Afterwards, students interacted with the content material by using different tools and applying effective learning strategies. After that, the teacher would refer to the exercises in coursebook for further skill practice and discussion with the students. During these two stages, students were allowed to discuss the point among themselves, with their teacher and/or search the web. At the end of the lesson, the teacher would conclude with a final activity to reinforce newly acquired knowledge and skills. Instant feedback was given at each stage of the lesson as described in Figure (1). Throughout the treatment, the teacher administered quizzes to track the progress of students, and after 4 weeks of the treatment, a post-test was administered to the students in the experimental group to examine whether there were statistically significant differences between their pre-test and post-test grades which will indicate the effectiveness of the virtual classes in developing the language achievement of third-grade elementary school students.

4. Results and discussion

To answer the first research question (What language skills are included in Units 6 and 7 of the Arabic Language textbooks for third-grade elementary school students?) The researcher created a list of language skills based on an analysis of units 6 and 7 in the textbook, and a review of previous studies. Then the list was approved by a group of 8 specialists after the researcher modified it according to their recommendations and suggestions.

The data from the language achievement tests were analyzed to answer the second research question (What is the effect of virtual classrooms in developing third-grade school students' language achievement?). A paired sample t-test was used to compare the differences between third-grade students' scores in the language achievement tests taken before and after the experiment.

Table 2. Means, standard deviation, and paired- sample t-test results of the unit 6 pre-test and post-test scores

	Mean	N	SD	t-value	df	Sig.	ETA 2	Effect Size
Unit 6 Pretest	10.4667	30	2.52891	8.87	29	at level 0.05	0.836	Large
Unit 6 Posttest	18.2000	30	2.64445					

Table 2. shows that there were significant differences at the p< .05 alpha level between the participants' mean scores in unit 6 pre-test (M= 10.46, SD= 2.52), and post-test (M= 18.2, SD= 2.64), t(29)= 8.87 in favor of the post-test. The

magnitude of the difference in the means was very large (eta squared= 0.836).

Table 3.Means, standard deviation, and paired- sample t-test results of the unit 7 pre-test and post-test scores

	Mean	N	SD	t-value	df	Sig.	ETA 2	Effect Size
Unit 7 Pretest	11.7333	30	1.74066	18.86	29	at level 0.05	0.693	Large
Unit 7 Posttest	19.3333	30	1.26854					

Table 3. shows that there were significant differences at the p< .05 alpha level between the participants' mean scores in unit 7 pre-test (M= 11.73, SD= 1.74), and post-test (M= 19.33, SD= 1.26), t(29)= 18.86, in favor of the post-test. The

magnitude of the difference in the means was very large (eta squared= 0.639).

Table 4. Means, standard deviation, and paired- sample t-test results of the pre-test and post-test overall scores

	Mean	N	SD	t-value	df	Sig.	ETA 2	Effect Size
Overall Pretest	22.2000	30	3.78199	36.39	29	at 0.05 level	0.961	Large
Overall Posttest	40.4000	30	3.69156					

Table 4. shows that the mean scores of the participants in the overall language achievement pre-test is (M= 22.2, SD= 3.78), whereas in the post-test was (M=40.4, SD= 3.69), and the difference between the two means was t(29)= 36.39, p<0.05 which indicates a statistical difference in favor of the post-test with the higher mean. The magnitude of the difference in the means was very large (eta squared= 0.961).

Overall, the findings indicate that virtual classrooms had a positive effect in improving third-grade elementary school students' language achievement. Further evidence of the difference between the pre- and post-test scores is provided by the inspection of the mean plots (see Figure 2) which shows the substantial change in the students' achievement level in the two units separately, and their overall language achievement.

Figure 2: Students' mean scores in the pre- and post-tests
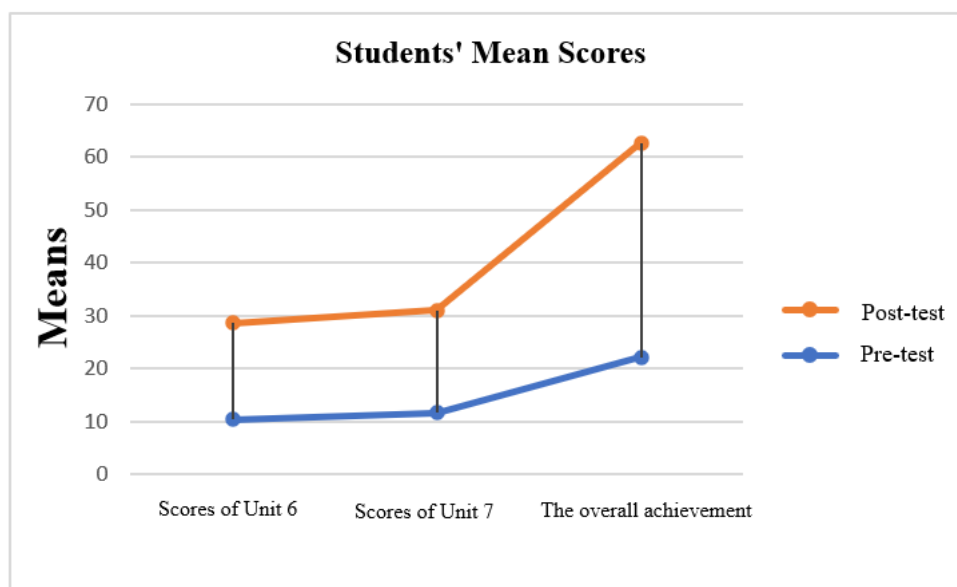
The outcomes of the current study are consistent with previous research that indicated the effectiveness of virtual classrooms in developing students' achievement and various academic skills (Shoaib, 2016; Jawda, 2017: Alzahrani, and Allam, 2020: Ibrahim, 2020; Hassanin, 2020; Alshehri, 2021; Alrifai, and Alansari, 2021). On the other hand, (Alharbi and Tayeb, 2020) found similar results with the positive effect of virtual classrooms on students' achievement, however, they reported some difficulties which may hinder the application of virtual classrooms, including poor school infrastructure, lack of necessary equipment, lack of awareness (the teacher, the student, and parents) in educational technology, and lack of motivation from the teacher or the student. Abu Kameel (2020) also reported that the continuous power outage was "at the top of challenges for using virtual classrooms, followed by poor internet connection services.''

Taking into account the abovementioned concerns, the current study offered effective solutions and support for students to overcome the challenges of virtual classrooms (see section 2.2.6. p.6 for more details). In addition, the effectiveness of using virtual classrooms in developing students' language achievement can be attributed to the following reasons: it actively engaged the students in the learning process by enabling them to connect with instructors and classmates. It provided learning materials and resources that promote self-learning, and offered direct and personalized interaction with the content and many opportunities for learners to share their knowledge and experiences. It also provided activities which promoted analytical-thinking skills through mediated forms of communication in the virtual environment. Moreover, it enhanced students' motivation by integrating different types of resources, interactive tools, and activities that are tailored to today's student needs. In addition, it facilitated the integration of technology to play an important part in education, and enhanced students' computer skills.

Recommendations

In light of these findings, the current study recommends the following:

• The importance of offering an educational training course to students to be introduced to virtual classrooms, their tools, how to use them, and how to activate the email so that the teacher can communicate with students.

• The importance of training the teachers on how to use virtual classrooms and their tools.

• Adopt virtual classrooms for teaching basic language skills for students in elementary schools as a supportive and complementary option to the traditional classrooms.

• Design an electronic Arabic language curriculum to be taught in virtual classrooms.

• Develop teaching methods and assessment strategies to meet the requirements of virtual classroom learning.

• Use learning resource centers in schools to create and manage virtual classrooms.

• Offer encouraging and motivational rewards for teachers deliver effective instruction in virtual classrooms.

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