



EFFECT OF VIRTUAL INSTRUCTIONAL STRATEGY ON SECONDARY SCHOOL STUDENTS' READING COMPREHENSION PERFORMANCE IN THE FEDERAL CAPITAL TERRITORY, ABUJA

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Abstract

This study investigated the effect of virtual instructional strategy on secondary school students' reading comprehension in the Federal Capital Territory, Abuja. The research set out to determine whether a comparative difference exists in students' interest in reading comprehension activities and the literal level in the reading comprehension performance of the students taught a virtual instructional strategy and those taught with a conventional instructional strategy. A quasi-experimental design was adopted for the study. To guide the study, two research questions were raised. Through the purposive sampling technique, a sample of 54 SSS 2 students was drawn from two private secondary schools in Abuja Municipal Area Council (AMAC), Federal Capital Territory, Abuja. Data were collected using the research instrument called the Reading Comprehension Test (RCT), adapted from New English Concept SSII. Simple percentage, standard deviation, mean, and t-test were used as statistical tools for the study. The results indicated that virtual instruction is effective in influencing students' interest in reading comprehension activities and also fostering reading comprehension at the literal level. It was recommended that teachers should train and enhance students' skills and aptitudes in summarising, evaluating and thinking at literal, inferential and critical levels using online activities, videos, audio, pictures and other text materials that are educationally appropriate.

Keywords: Virtual Instructional Strategy, Conventional Instructional Strategy, Reading Comprehension, Secondary School Students.

Introduction

The traditional classroom is often unexciting, as instructional materials and tasks are hardly deployed for effective teaching of texts. The need, therefore, to deploy a better teaching style and channel becomes one strong motivating factor for this study, as students' performance in reading comprehension has not been encouraging, especially when their performances in the West Africa Examination Council (WAEC) and the National Examination Council (NECO) are assessed (Fatai et al., 2021; Maisamari, 2019).

The need to engage learners in a more interactive, flexible, technologically-tasked, oriented classroom has become necessary for effective teaching of reading comprehension (Yenus, 2017). Therefore, the use of virtual instruction as an interactive, flexible, learner-centered technological tasked-based teaching and learning tool cannot be ignored, especially in today's world, where the post-COVID-19 pandemic and cost of living constitute a big challenge to teachers, learners and other educational stakeholders.

Virtual instruction is an online interactive platform or a teaching and learning environment where teachers and learners present learning materials and tasks with the aim of meeting educational goals (Anastassiya & Dan, 2020). It is also an online live interactive platform where activities such as teaching, learning, evaluation, presentation of materials, and grouping of learners take place (Martins, 2022). It is an online teaching and learning space that is synchronous in nature. It allows students' active participation and promotes a student-centred approach where learners can produce and present materials for class discussion and the general teaching and learning activities (Yenus, 2017). The use of Microsoft Teams, Google Classroom, Zoom, WhatsApp, and Telegram is one of the live, synchronous and interactive classrooms that recent language experts propose for use in the teaching and learning of English language skills (Quin, 2023).

Reading is a complex cognitive process of recognising words, pictures, and figures, and making meaning from them (Yenus, 2017). Reading is central to learning. The ultimate goal of teaching reading is comprehension; the understanding of a text at various levels, including a critical proficiency that gives the learner a deep and holistic

view of the content of a text (Odumuh, 2020). It is one of the productive skills, and one needs to internalise basic units of language to effectively read and make sense of a text, as well as write (Jaenal, 2021). When a student comprehends a text or a situation accurately, he or she can understand, identify the main points and provide answers to questions from a textbook or events. Thus, understanding a text requires the reader to provide answers to questions of various levels: literal, inferential and critical (Loucky, 2019).

Over the years, the need to effectively teach reading comprehension to Secondary School students has been a major concern for language education researchers. This concern becomes very important, considering students' performance in reading comprehension in internal, external, national and international examinations such as West African Examination Council (WAEC), National Examination Council (NECO), Joint Admission and Matriculation Board (JAMB), National Business and Technical Examinations Board (NABTEB), Scholastic Assessment Test (SAT), Test for English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), and International General Certificate of Secondary Education (IGCSE) (Maisamari, 2019; Okika, 2021).

Teaching is a symbiotic partnership between the instructor and the learner. The use of virtual resources in teaching actively engages both the teacher and learners in the course of instruction. Virtual instructional strategy improves the quality of learning and students' learning experience (Malo, 2022) because concepts are easily presented and comprehended as words are complemented with images and animations. However, instructional procedures in reading classrooms in the FCT schools are largely conducted using the chalk and talk approach with little or no use of virtual teaching resources.

Since the turn of the millennium, there have been several advances in the field of education, especially in the aspect of knowledge construction or instructional procedure in the classroom. There has been a significant shift from the chalk and talk approach to instructional processes that are hands-on, engaging, and learner-centred. The process of teaching and learning in schools has become highly structured, with the application of virtual instructional strategy becoming decidedly complementary to the traditional chalk-and-talk (Olagbaju et al., 2020).

Research has shown that virtual instructional strategy fosters interest in reading activities and effective learning, and it provides a veritable platform for modelling, observation and feedback (Ode, 2014; Adamu et al., 2018). It is also user-friendly, judging from the increase in smartphones and other internet-enabled devices accessible to many young school learners and teachers. Further studies confirm that virtual instruction platforms make learning more interactive and engaging by stimulating sensory experiences (Olagbaju et al., 2020), all within a safe, controlled environment. This shift significantly boosts students' involvement, transforming them into active participants in the learning process rather than passive observers (Zanjani et al., 2021).

The knowledge of evaluative skills is a vital component in approaching reading comprehension. Studies from Julie (2014) and Coiro (2014) in reading comprehension have shown that written text is better understood and interpreted when the reader is able to identify names of persons, places, things, ideas, events and other information in the text. This skill requires readers to identify what is said or mentioned or clearly written in the text. Understanding the literal level of a text gives a reader a better understanding of the text.

The imperative to enhance learners' reading comprehension performance through virtual instruction drives this study's primary objective. The purpose of this study, therefore, was aimed at comparing the reading comprehension interest and performance of students exposed to virtual instruction against those exposed to conventional teaching strategies, with a specific focus on literal-level comprehension.

Objectives of the Study

The objectives of the study were to:

1. examine the extent to which virtual instruction influences students' interest towards reading activities at private secondary schools;
2. Find out the mean performance scores at the literal level of students taught reading comprehension using virtual instruction and those taught in conventional classrooms in private secondary schools.

Research Questions

The following research questions were answered in this study:

1. To what extent does virtual instruction influence students' interest towards reading activities at private secondary schools?
2. What are the mean performance scores at the literal level of students taught reading comprehension using virtual instruction and those taught in conventional classrooms in private secondary schools?

Hypotheses

The following are null hypotheses formulated and tested for the study:

H0₁: There will be no significant difference in virtual instruction influencing students' interest in reading activities at private secondary schools between students taught using virtual instruction and those taught in a conventional classroom.

H0₂: There will be no significant difference in reading comprehension performance scores between students taught using virtual instruction and those taught in a conventional classroom in private secondary schools at the literal level.

Methodology

This study adopted a quasi-experimental research design (Biu et al., 2025; Isiaq et al., 2026). The participants consisted of 54 SSS2 students from two (2) private secondary schools in Abuja Municipal Area Council (AMAC), Federal Capital Territory, Abuja. The sample size used for this study was purposive and employed simple random sampling techniques. From the given population, only two schools and two classes were sampled and obtained for the study in stages. Stage 1: From the six (6) Area Councils in the FCT, purposive sampling of AMAC was used. This was done to enable the researcher to generate the probability of the virtual instruction facilities. Stage 2 was the selection of two private Secondary Schools, both in AMAC. Thus, these schools with virtual instruction facilities were identified for the purpose of assignment into experimental and control groups. Stage 3 focused on the selection of the arms used in each of the schools sampled through a random sampling technique. Thus, the names of all the arms of a class were written on a piece of paper, folded and shuffled vigorously. The research assistant randomly picked one paper, and the arm picked was used for the study in that school. A purposive intact class was used for the arms sampled. The two schools sampled were assigned to experimental and control groups. To get this done, the researcher wrote the names of the two schools on a sheet of paper, folded each of them and shuffled vigorously. The research assistant picked each of the papers. The first paper was used for the experimental group, while the second paper was used for the control group. The instrument used for the research was the Reading Comprehension Test (RCT) adapted from New English Concept SSII. Simple percentage, standard deviation, mean, and t-test were used as statistical tools for the study.

Results

Research Question 1

To what extent does virtual instruction influence students' interest towards reading activities at private secondary schools?

Table 1: Mean Scores of Students' interest in reading comprehension activities

Group	N	Pre-test		Post-test		Mean Gain Score
		$\bar{x}_1$	SD	$\bar{x}_2$	SD	
Experimental	26	6.93	3.60	18.07	2.03	11.14
Control	28	6.96	3.38	8.19	1.41	1.23
Mean difference		0.03		9.88		9.91

Table 1 reveals that the pre-test mean scores of both experimental and control groups were 6.93 and 6.96, respectively, while the standard deviations were 3.60 and 3.38, respectively. The mean difference of both groups is 0.03, which is negligible. This means that the students in the experimental and control groups expressed similar interest in reading comprehension activities before the commencement of treatment (experiment). The post-test result showed that the students in the experimental group had a post-test performance mean score of 18.07 with a

standard deviation of 2.03, while the control group had a post-test mean score of 8.19 with a standard deviation of 1.41. The result also shows that the experimental group had a mean gain of 11.14, while those in the control group had a mean gain of 1.23. The table showed that the experimental group had a higher and increasing mean effect of 9.91 on the students' performance in reading comprehension. This showed that the use of virtual instruction fostered increased interest in reading comprehension activities as students in the experimental group performed better than students in the control group.

Research Question 2

What are the mean performance scores at the literal level of students taught reading comprehension using virtual instruction and those taught in conventional classrooms in private secondary schools in FCT, Abuja, Nigeria?

Table 1: Mean Score of Students Taught Literal Reading Comprehension

Group	N	Pre-test		Post-test		Mean Gain Score
		$\bar{x}_1$	SD	$\bar{x}_2$	SD	
Experimental	26	5.20	2.28	15.87	2.62	10.67
Control	28	5.70	2.61	9.56	1.65	3.86
Mean Difference		0.50		6.31		6.81

Table 2 indicates that the pre-test mean scores of both experimental and control groups taught literal reading comprehension were 5.20 and 5.70, respectively, while the standard deviations were 2.28 and 2.61, respectively. The mean difference of both groups is -0.50, which is negligible. This means that the students in experimental and control groups have similar performance mean scores in literal reading comprehension before the commencement of treatment (experiment). The post-test result showed that the students in the experimental group had a post-test performance mean score of 15.87 with a standard deviation of 2.62, while the control group had a post-test mean score of 9.56 with a standard deviation of 1.65. The result also shows that the experimental group had a mean gain of 10.67 while those in the control group had a mean loss of 3.86. The table showed that the experimental group had a higher and increasing mean effect of 6.81 on the students' performance in literal reading comprehension. This shows the effectiveness of the use of virtual instruction in teaching literal reading comprehension, as students in the experimental group performed better than students in the control group.

Test of Hypotheses

All the two (2) hypotheses were tested using a t-test at a 0.05 level of significance.

H0₁: There will be no significant difference in virtual instruction influencing students' interest in reading activities at private secondary schools between students taught using virtual instruction and those taught in a conventional classroom.

Table 3: t-test Mean Score Performance of Students' interest in reading comprehension activities

Group	N	$\bar{x}$	SD	df	t-value	Sig.(P)	Decision
Experimental	26	18.07	2.03	52	-21.114	.000	Significant
Control	28	8.19	1.41				

Table 3 shows that there was a significant difference in mean score performance between the experimental group interest in reading comprehension activities using virtual instruction, and the control group interest in reading activities taught using a conventional classroom, as $t = -21.114$, $df = 52$, $P .000 < 0.05$. The hypothesis was rejected. Therefore, there was a significant difference in virtual instructional strategy influencing students' interest in reading activities between the experimental group and the control group. Thus, the use of virtual instruction in fostering reading comprehension is effective.

H0₂: There is no significant difference in reading comprehension performance scores between students taught using virtual instruction and those taught in a conventional classroom in private Secondary Schools at the literal level.

Table 4: t-test Mean Score Performance of Literal Reading Comprehension

Group	N	$\bar{x}$	SD	df	t-value	P-value	Decision
Experimental	56	17.20	2.44	54	16.170	.000	Significant
Control	61	9.49	2.16				

Table 4 shows that there was a significant difference in mean score performance between the experimental group taught literal reading comprehension using virtual instruction and the control group taught using a conventional classroom, as $t = 16.170$, $df = 52$, $P .000 < 0.05$. Thus, the null hypothesis is rejected for the alternative, which states that there is no significant difference in reading comprehension performance scores between students taught using virtual instruction and those taught in a conventional classroom in private Secondary Schools at the literal level. This indicates that virtual instruction is effective in the teaching of literal comprehension.

Discussion of Findings

Hypothesis one indicates that there is a significant difference in mean score performance between the experimental group, interested in reading comprehension activities using virtual instruction, and the control group, interested in reading activities taught using a conventional classroom. This finding agrees with the finding of Olagbaju et al. (2020), accentuating the findings that virtual instructional strategy fosters interest in reading activities and effective learning; and it provides a veritable platform for modelling, observation and feedback, making learning more interactive and engaging by stimulating sensory experiences.

Hypothesis two revealed that there is a significant difference in mean score performance between the experimental group taught literal reading comprehension using virtual instruction and the control group taught using a conventional classroom. The finding agrees with Julie's (2014) and Coiro's (2014) assertion that written text is better understood and interpreted when the reader can identify names of persons, places, things, ideas, events and other information in the text. Understanding the literal level of a text gives a reader a better understanding of the text.

Conclusion

The study investigated the effect of virtual instructional strategy on secondary school students' reading comprehension performance in the Federal Capital Territory, Abuja. Findings from the study indicate that students instructed via virtual instruction outperformed their counterparts in a conventional classroom. Consequently, this study concludes that virtual instruction is a more effective approach to teaching reading comprehension than traditional classroom methods.

Recommendation

1. Teachers should use virtual instruction to foster students' interest in reading comprehension activities. Short video or audio text could also be presented to facilitate students' interest and the development of literal skill in reading comprehension.
2. Teachers should be encouraged to use virtual instructional strategies in teaching literal meaning to students. Through online and video discussions, the teacher may task students to identify literal information in the story.
3. Teachers should train and enhance students' skills and aptitudes in summarising and evaluating using online activities, videos, audio, pictures and other text materials that are educationally appropriate.

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