



Enhancing English Preposition Instruction among Post-Secondary School Students through the Integration of Interactive Learning Tools in Zaria Local Government

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ABSTRACT

This paper discussed the impact of the integration of interactive learning tools in enhancing English preposition instruction among post-secondary school students in Zaria local government. A quasi-experimental design was utilized in the study. Two groups of participants were used as control and experimental, comparing the group using digital tools and the one using traditional methods. The study used stratified random sampling to select a sample of 20 NCE I students in various course combinations other than English in the Federal University of Education Zaria. The sample was split into two groups – experimental and control. Digital tools were used in teaching the experimental group prepositions, while traditional approaches were chiefly used in teaching the control group. An objective test comprising 20 items was used to collect data on the participants' performance in using prepositions in both sentences. The test comprised sentences each of which consisted of a preposition selected to elicit responses from the participants, in both the pre-test and the post-test, to demonstrate their performance in the use of prepositions. Three prepositions were selected for use in testing the participants. These prepositions were at, in, and focused on their literal and metaphorical meanings. This research finds that utilizing technology in preposition instruction has pedagogical benefits which include increased motivation, lasting engagement and clear perception among students. The paper also addresses the potential challenges educators face, including technological accessibility and the need for adequate training. The study recommends that English teachers should employ a balanced approach that encompasses both traditional and innovative instructional methods.

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INTRODUCTION

In this time of speedy development in technology, the educational landscape is undergoing a significant transformation. The incorporation of technological tools otherwise known as digital tools in education has become more and more significant, offering innovative approaches to enhance student engagement, comprehension and competence. Digital tools such online games, the Virtual Reality and hybrid learning models have been effectively utilised to

enhance students' engagement considerably by creating interactive and immersive learning environments (Arund, 2024).

Traditional grammar instruction often relies on rote memorization and repetitive exercises, which can be monotonous and demotivating for students. Digital tools, however, offer a diverse range of interactive and engaging resources that can revitalize grammar learning. These tools include interactive grammar exercises, online platforms with personalized

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learning paths, multimedia resources like videos and animations, and language learning applications that provide instant feedback and personalized practice. Interactive learning makes learning more interesting and captivating particularly when combined with autonomy supporting teaching (David & Weintein, 2024). Other approaches such as use of AI and personalized improvement in students understanding of perceptions allowing for tailored practice that addresses individual learning needs (Jamal and Iqbal, 2023).

Examining students understanding of prepositions in English language can be effective achieved through a combination of traditional and innovative methods. Tools like Google Books, Ngram Viewer, Thinglink and Powtoon allows students to explore the frequency of prepositions usage of various content promoting self-discovery and meaningful learning (Patel, 2022). It is important to recognize that some learners may struggle with prepositions due to their complexity and availability (Sisianu and Puscasu, 2024). The term "prepositions" has been defined by the content as words that show the relationship between a noun or pronoun and other words in a sentence. Prepositions are classified according to their function. They often indicate location (in, on, at, above, below, under, over, behind, in front of, between, among), direction (to, from, into, out of, toward, away from), time (at, on, in, before, after, during, since, until), or manner (by, with, without). In English Language Teaching (ELT), digital technologies like interactive tools and multimedia resources have increased student motivation and improve language proficiency (). In Albanian schools, the integration of digital technology has led to higher examination scores and increased students' enthusiasm for learning (Nair, 2024).

This study aims to explore the effectiveness of these digital tools in improving students' grammar proficiency, enhancing their motivation and engagement, and fostering a deeper understanding of grammatical concepts. By examining the research findings and analyzing the experiences of both students and educators, this paper will help in the perception of the significance of technology in contemporary language

education and provide valuable awareness for educators who wish to optimize their grammar instruction strategies in the digital age.

Research objectives

1. To examine the relationship between utilising digital tools and students' motivation in learning prepositions.
2. To determine the relationship between utilising digital tools and students' engagement in learning prepositions.
3. To identify the potency of digital tools on the performance of students in using prepositions.

Research Questions

The study sets to answer the following questions.

1. What is the relationship between utilising digital tools and students' motivation in learning prepositions?
2. What is the relationship between utilising digital tools and student engagement in learning prepositions?
3. What is the difference in the performance of students taught prepositions using digital tools and those taught using traditional methods?

Null Hypotheses

- H0₁ There is no significant relationship between utilising digital tools and student motivation in teaching prepositions.
- H0₂ There is no significant relationship between utilising digital tools and student engagement in teaching preposition.
- H0₃ There is no significant difference in the performance of students taught prepositions using digital tools and those taught using traditional methods.

METHODOLOGY

A quasi-experimental design was utilised in the study. Two groups of participants were used as control and experimental, comparing between the group using digital tools and the one using traditional methods. The study used stratified random sampling to select a sample of 20 NCE I students in various course combinations other than English in Federal



University of Education Zaria. The sample was split into two groups – experimental and control. Digital tools were used in teaching the experimental group prepositions, while traditional approaches were chiefly used in teaching the control group. An objective test comprising 20 items was used to collect data on the performance of the participants in the use of preposition in both sentences. The test comprised sentences each of which consisted of a preposition selected to elicit responses from the participants, in both the pre-test and the post-test, to demonstrate their performance in use of prepositions. Three prepositions were selected for use in testing the participants. These prepositions were: *at*, *in*, *on* focusing on their literal and metaphorical meanings.

Three interactive grammar apps were used to train the participants in the use of prepositions. These apps were Genially, Thinglink, and Powtoon, all of which are powerful tools that can be used to generate images or animations to contextualise the abstract nature of prepositions. The training sessions were held on Google Meet platform, where the participants were engaged in collaborative and interactive tasks in the learning of prepositions. Quantitative and qualitative analyses were used to analyse scores in the pre- and post-tests. T-tests were used to determine the effectiveness of Genially, Thinglink, and Powtoon in improving students' performance in prepositions.

Respondents' Characteristic

Table 1: Respondents Characteristics based on Sample Participants

Group	Number of Participants
Experimental	20
Control	20

Table 1 above shows participants for the study. The participants were split into two – the first, the experimental, and the second, the control. Each group consisted of twenty (20) students. In answering the research questions, mean score performance of the participants in both groups in the post test were used to answer research questions one, two and three. The last research question was analysed using frequency

and percentage to ascertain the participants' attitudes (view) on the method used for teaching. For inferential testing one sample T-test was utilised to test the efficacy of these digital tools in improving students' grammar proficiency, enhancing their motivation and engagement, and fostering a deeper understanding of grammatical concepts.

Respondents Data Set for Score in Different Research Questions

Table 2: Mean and Standard Deviation of Data set score of research questions

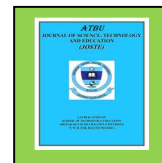
	group	N	Mean	Std. Deviation	Std. Error Mean
Motivation	Pre Experiment	20	3.2667	0.50236	.82202
	Pre-Control	20	3.3333	0.25774	.16237
	Post-Experiment	20	4.6667	0.01201	2.01051
	Post-Control	20	3.7667	0.12334	1.04872
Engagement	Pre-Experiment	20	3.3337	0.25144	.77620
	Pre-Control	20	3.3333	0.28755	.55352
	Post-Experiment	20	7.6667	0.90133	.89486

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Students Score for correct options	Post-Control	20	4.8000	0.86008	.62743
	Post-Control	20	3.3333	0.62503	1.50078
	Pre-Experiment	20	30.33	0.32569	2.06778
	Pre-Control	20	35.03	0.81895	1.39672
	Post-Experiment	20	61.95	0.33382	3.29285
	Post-Control	20	42.467	0.38596	1.98632

Table 2 present result from SPSS version 21 output. The break done and interpretation are as follows:

Answering the Research Questions

This unit the answers the research questions asked by the study.

Research Question One: What is the relationship between utilising digital tools and student motivation in learning prepositions?

Table 3: Mean and Standard Deviation for the Post-Test Result on the Relationship Between the use of digital tools and student motivation in learning preposition

Group	N	X	St. Dev.
Experimental	20	4.67	0.012
Control	20	3.77	0.123

The results in Table 3 reveal that participants in the experimental group have mean performance of 4.67 and standard deviation of 0.01 while the control group have mean performance of (M=3.77, SD= 0.12, MD= 0.90). This result reveals high level of improvement in the students' performance of post experimental group compare to post control group students. The result therefore shows that utilising digital

tools enhances participants' motivation for learning grammar.

Research Question Two: What is the relationship between utilising digital tools on students' engagement in learning prepositions?

This question was answered by the descriptive statistic presented in the following Table 4.

Table 4: Mean, Standard Deviation of Post Test Result on the Role of Interactive approach in Establishing Questioning Strategies for Answering Reading Comprehension Questions

Groups	N	Mean	Sd
Experimental	20	4.77	0.901
Control	20	3.60	0.860

In Table 4, the result reveals that participants in the experimental group have the performance of (M =7.67, SD = 0.90) while the participants in the control group have the performance of (M=4.80, SD = 0.86, and MD = 1.7).

Test of Hypotheses

Hypothesis One H₀₁: There is no significant relationship between utilising digital tools and students' motivation in learning prepositions.

Table 5: Analysis of relationship between the utilising digital tools and students' motivation in learning preposition

Variables	N	\bar{X}	St.Div.		df	t	p	
Agree	15	4.77	0.90					
					19	4.17	0.00	
Disagree	5	3.60	0.86					

Table 5 showed that the agreed respondents have ($M = 4.77$, $SD = 0.90$) while disagreed respondents have ($M = 3.60$, $SD = 0.86$ with $df = 19$, $p = 0.00$). The mean difference between the variable is 1.17. Since the p value is 0.00 is less than 0.005 and the t value is 4.17 the study rejected the null hypothesis that say there is no significant relationship between the use of

digital tools and student motivation in learning preposition and accepted that there is significant relationship between the use of digital tools and student motivation in learning preposition.

H₀₂: There is no significant relationship between utilising digital tools and students' engagement in learning prepositions.

Table 6: Analysis of H₀₂: there is no significant relationship between utilising digital tools and students' engagement in learning prepositions

Variables	N	\bar{X}	S.D.		D.F.	T	P. Value	Remark
Agree	13	4.14	0.20					
					19	4.42	0.00	Significant
Disagree	7	1.21	0.87					

Table 6 shows that the agreed respondents have mean rate of 4.14 with standard deviation of 0.20 while disagreed respondents have mean rate of 1.21 with standard deviation of 0.87. The mean difference between the variable is 2.93. Since the p value is 0.00 is less than 0.005 and the t value is 4.42. The study rejected Null Hypothesis 2, which states that there is there is no significant relationship between utilising digital tools and students' engagement in learning

prepositions at post-secondary schools level and accepted that there is significant relationship between the use of digital tools and student's engagement in learning preposition at post-secondary schools.

H₀₃: There is no significant difference in the performance of students taught prepositions using digital tools and those taught using traditional methods.

Table 7: T-test for significant effect of digital tools on students' performance in prepositions compared with those taught using traditional method.

Group Type	N	X	St. Div.		f	t	df	p	
experimental	20	61.95	0.69						
					.210	.65	39	0.01	
Control	20	42.467	0.63						

Table 7, reveals the t-test analysis of significant difference for post experimental and control group on performance of students taught using digital tools on students learning prepositional lesson with mean difference of 19.48. The t-value is 0.65 has a corresponding p-

value 0.01 at 38 degrees of freedom, which was less than p value of 0.05 level of significance. $p = 0.01$ is significant; hence, the null hypothesis one (H_{03}) is rejected. This means there is significant difference in the post-experimental and post-control groups on the performance of students

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taught prepositions using digital tools. This study found that digital tools bring about students' positive performance on learning preposition in post-secondary schools.

DISCUSSION ON FINDINGS

This study found out that there is significant relationship between utilising digital tools and students' motivation in the learning of prepositions. This finding is in line with the findings of Chen & Huang (2024)'s study which found that digital platforms have been shown to foster motivation levels among students thereby showing a considerable positive relationship between the use of digital platforms usage and students' level of motivation.

This study found out that there is significant relationship between utilising digital tools and students' engagement in learning prepositions at post-secondary schools. This finding was correlated with the findings of Auliya and Muhammad (2024) which found the use of gadgets to positively influence students' motivation in language education, as a result students' engagement and positive attitude towards learning are promoted.

Also, this study found that there is significant difference in the post-experimental and post-control groups on the performance of students taught prepositions using digital tools compared with those taught using traditional methods. This is similar to the studies of Valverde-Valverde et al. (2024), Naeem (2023), Ahmadpour et al. (2018) and Shirazi and Sadighi (2012) all of whom found out that students taught using digital tools such as online games and mobile-mediated feedback achieved significantly better results than those taught through traditional methods. In a similar studies by Babajani et al. (2022) and Wijaya and Ong (2018) found digital tools to not only improve immediate test scores but also facilitated better retention of knowledge over time.

CONCLUSION

There is a considerable connection between utilising digital tools and students' motivation in learning preposition with the mean difference of 1.17, t value is 4.17 and p value is

0.00. There is a considerable connection between utilising digital tools and students' engagement in learning preposition at post-secondary schools with mean difference of 2.93, t value is 4.42 and p value is 0.00. There is significant relationship between the use of digital tools and students' perception in learning preposition at post-secondary schools level with mean difference of 0.90, t value is 4.11 and p value is 0.00. There is significant difference for post-experimental and control group on performance of students taught using digital tools on students learning prepositional lesson with mean difference of 19.48, t value is 0.649 and p value is 0.0108.

RECOMMENDATIONS

1. Teachers should consider combining digital tools with traditional teaching methods to maximize their potentials and address diverse learning needs
2. Teachers should be trained on the way to use digital tools in teaching preposition
3. Government should provide necessary facilities to support effective integration of digital tools in teaching English at post-basic levels
4. Schools should encourage the use of digital tools specifically to enhancing academic performance
5. Parents should support their wards by providing them with digital tools at home.

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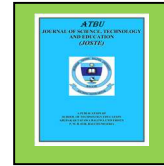
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