

Effects of Thematic Web Quest Strategy on Students Retention in Upper Basic Social Studies in Jos North, Plateau State, Nigeria

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Abstract

This research aims to determine the effect of the thematic web quest strategy on students' retention in upper basic social studies students in Jos North, Plateau State, Nigeria. The effectiveness of any instruction can be assessed by the extent to which concepts are retained and for which duration. Two research questions and two null hypotheses guided the investigation. A quasi-experimental, non-equivalent pre-test and post-test Quasi-experimental design was adopted. Two intact classes in two co-educational public schools were purposively selected and randomly assigned to experimental ($n = 34$) and control ($n = 36$) groups. The Social Studies Retention Test (SSRT) was used for data collection. Descriptive statistics (mean and standard deviation) were used to answer all research questions, while the inferential statistics (ANCOVA) were used to test hypotheses at the 0.05 level of significance. The result indicated that students' retention of concepts improved significantly in the experimental group, where students reported better learning experiences than their counterparts in the control group, and also that gender does not have a significant effect on the retention of students. This beneficial effect of a technology-integrated approach can be attributed to the use of various internet-based engaging contents carefully selected to fill the gap in teacher support known as the thematic web quest strategy. The research makes the following recommendations: Embed the WebQuest strategy into curriculum, classrooms, and teacher training while funding the digital tools that power it.

Keywords: Thematic WebQuest, Retention, Gender, Upper Basic Social Studies

Introduction

Education serves as a fundamental pillar for personal development and national progress, necessitating innovative teaching approaches that can address contemporary learning challenges. Social studies have been integrated into the upper basic curriculum in Nigeria to develop Nigerian youths into responsible citizens who can recognize the many dimensions of being human within different social and cultural contexts. According to Adeduntan, 2020, its teaching is aimed at citizenship education, taking into account Nigeria's diverse and pluralistic nature. Social studies draw content, concepts, and theories from, but is not limited to, social science, humanities, and sciences to help students understand human interactions and societal problems, equipping them for civic competence and active engagement in public life.

In Nigeria, the integration of technology-driven pedagogies within the curriculum has gained prominence as educators strive to enhance students' engagement and retention, particularly in social studies as a subject. Retention in learning remains a critical issue, this is because traditional instructional methods often fail to sustain students' long-term interest and

understanding. The Nigerian educational contexts have underscored the potential of Thematic Web Quest Strategy in improving academic interest, performance, and knowledge retention among junior secondary school students (Arugu & Njoku, 2023). The thematic Web quest strategy, which encourages investigative and participatory learning through guided internet-based tasks, holds promise for enriching students' cognitive and affective learning experiences. This approach actively engage learners by linking classroom content with real-world information, fostering deeper understanding and motivation. However, challenges remain concerning the consistent application of such digital strategies across diverse school environments, especially in upper basic schools where resource limitations and pedagogical gaps persist (Afolabi & Ogundele, 2019). Specifically, in Jos North, Plateau State, there is a critical need to explore how thematic Web quest affect students' retention in Jos North and whether gender impacts on the retention mean scores of students.

This study aims to empirically ascertain the effects of the thematic WebQuest strategy on students' retention in upper basic schools in Jos North, Plateau State, and, also to ascertain the effect of gender as moderated factor, providing evidence-based recommendations for educators and policymakers committed to enhancing social studies education through innovative, technology-driven methods.

Aim and Objectives

The main aim of this study is to investigate the effects of the Thematic WebQuest Strategy on students' retention in Upper Basic II social studies in Jos North, Plateau State. The specific objectives sought to:

1. Determine the retention mean score of Upper Basic Social Studies students taught with the Thematic WebQuest Strategy and those taught with conventional strategies.
2. Examine the difference in the retention mean score of male and female students taught social studies using the thematic WebQuest strategy.

Hypotheses

The following null hypotheses were tested at the .05 level of significance:

1. There is no significant difference in the retention mean score of students taught using the Thematic WebQuest Strategy and those taught with conventional strategies.
2. There is no significant difference in the retention mean score of male and female students taught social studies using the thematic WebQuest strategy.

Theoretical/Conceptual Framework

This study is grounded on Ebbinghaus's Theory of Retention of Knowledge (1885), which models learning as an exponential forgetting process, positing that up to 50% of newly acquired information is lost within one hour, 70% within 24 hours, and only $\pm 25\%$ remains after one week unless strategic reinforcement intervenes. The theory's core constructs—the forgetting curve, spaced repetition, and meaningful encoding—highlight that retention is nonlinear, highly sensitive to initial learning conditions, and amenable to deliberate instructional design.

In this context, the Thematic WebQuest Strategy is positioned as the independent variable, while students' retention of social studies content and academic achievement serve as the dependent variables.

The WebQuest embodies Ebbinghausian principles by encompassing thematic chunking, where content is organized around authentic, interdisciplinary themes that increase semantic richness

and prior-knowledge linkage, thereby slowing the forgetting rate. A scheduled re-encounter and online inquiry cycles are spaced across days, embedding micro-repetitions that actively counter the exponential decay curve. Also, it has elaborative retrieval, which is a collaborative task, and real-world problem-solving acts as active-recall episodes that strengthen storage strength each time information is revisited.

Applying Ebbinghaus's retention theory, this study argues that strategically designed thematic WebQuests can significantly flatten the forgetting curve and elevate achievement in social studies compared to traditional lecture-only instruction. The expectation is that the strategy will produce deeper encoding, longer retention, and higher academic performance by aligning spaced, meaningful, and inquiry-driven experiences with the natural dynamics of human memory.

Literature Review

Folorunso and Adegboye (2024) defines Social studies as a field that educates individuals by providing them with skills and attitudes necessary to become responsible and competent citizens. It can also be seen as an integrated field of study that help young individuals fully develop into human adults by relating them to their society through appropriate knowledge and experience selected from social science such as political science, geography, sociology, economics, anthropology, and other disciplines like history and religious studies (Abiodun, 2024). It is safe to say, Social Studies is an interdisciplinary approach deployed to study man in his environment with the aim of exploring relationship, developing intellectual, social and problem solving skills as well as enhancing quality of life. The curriculum of social studies is embedded with contents that when effectively taught will produce disciplined adults who can maintain patriotism, moral uprightness, faithfulness, and efficiency, ultimately contributing to national development.

The ultimate goal of education is not only to assist learner acquire knowledge but to retain it and apply it effectively. retention play a crucial role in ensuring the timr and effort invested in learning are not in vain. Retention to Eze, Obidile and Okotubu (2020) refers to the abiity to remember and recal knowledge and undersanding of fundamental concepts (not just facts) ater a period of time, alloing for later use and application. Effective learning retention is important as it enhance the overall learning exprinences and enble invididuals to build upon previously learned concepts. various factor contribute to learning retention, including the use offective instructional techniques, active engagement in the learning process, reinforcement and practice and creating connections and relevance to real world applications (Matt, 2023).

The learning pyramid suggests different learning methods have different degrees of effectiveness in promoting long-term retention of concepts.



According to the learning retention pyramid, passive learning methods such as lectures are considered to have lower retention rates, while active learning, which engages learners through activities, discussion, application, and sharing of knowledge, has a stronger impact on retention. Gender, to Eze et al. (2020), is a socially learned attitude, behavior, and characteristic that is associated with being male or female, distinct from biological sex. Some studies have found no significant difference in retention rates between male and female students, suggesting gender may not be a primary factor in retaining concepts; others indicate either “boys” or “girls” performed higher, insisting that it depends on the subject and method, strategies, and techniques used (Owodunni, 2013).

Thematic WebQuest Strategy is an instructional strategy that uses the internet as a primary resource for students to gather information through guided inquiry-based, student-centered learning activities. Arugu (2023) conceptualized it as a strategy that integrates technology with instructional goals, encouraging students to engage in meaningful research tasks, collaborative learning, critical thinking, and the evaluation of information. It also supports the development of research, self-learning, and communication skills. According to Al Sharidah (2023) Thematic WebQuest is characterized by; structured lesson planning with clear objectives, task, process, and evaluation, use of reliable and relevant web resources pre-selected by teachers, encouragement of teamwork and cooperative learning, promotion of critical thinking and problem-solving, development of technology and information literacy skills, motivation and simulation of curiosity through inquiry and also it is flexible and can be applied in different subjects and as age groups.

Educational implications of using Thematic WebQuests involve enhanced student engagement, improved academic performance and retention of knowledge, development of higher-order thinking skills, and facilitation of active and collaborative learning. Studies have shown positive effects of WebQuest in diverse educational contexts, improving students' interest, achievement, and research skills as well as catering for different learning styles and encouraging self-directed learning (Arugu & Njoku, 2023).

Method and Procedure

This study employed a quasi-experimental research design, using a posttest and retention test approach on control and experimental groups to investigate the effects of the Thematic WebQuest Strategy on Upper Basic Two Social Studies students in Jos North, Plateau State. Two intact classes were sampled from two comparable schools for use. The population of the study is composed of 1,843 students found in the 22 public schools with Upper Basic Two Social Studies students in Jos North. Simple balloting assigned one school to experimental (population = 34) and the other to control (population = 36). After two weeks of intervention, a posttest was administered to both groups, which established a baseline of students' level of performance as well as assessed learning gains. Two weeks' space was given before the retention test was administered.

Data were collected using the Social Studies Achievement Test (SSAT) for posttest assessment, while the Social Studies Retention Test (SSRT) was used to test retention. SPSS version 25 was used to analyze data; mean and standard deviation (descriptive statistics) and ANCOVA inferential statistics were used to test two null hypotheses at the .05 level of significance.

RESULTS

1. **Hypothesis One:** There is no significant difference in retention mean score of students taught using Thematic WebQuest Strategy and those taught with convention strategies.

Table 1

Retention means of students in experimental and control groups

	N	Mean	Std. Dev.
Retention test Experimental group	34	57.68	13.535
Retention Test Control group	36	33.72	6.881

Table 1 present mean score of both groups after intervention. The experimental group had a post-test mean score 57.97 with a retention mean score of 57.68 while the control group has a posttest means score of 38.47 with a retention mean score of 33.72. This shows that after intervention, the experimental group performed higher than the control group.

Table 2

ANCOVA retention test result

	Sum of squares	Df	Mean square	F	Sig.
between groups	1328.765647	1	1328.765647	17.477917	.000
Within group	5473.828947	72	76.025402		
Total	6802.594595	73			

Source: Researchers SPSS output (2025)

Table 2 above displays ANCOVA result for retention mean score of students after intervention. The analysis showed a statistically, $F(1,72) = 17.477917$, $p=.000$, indicating a significant difference in retention between experimental and control group. By this result we reject the null hypothesis, it also indicates the Thematic WebQuest Strategy positively enhance retention among students.

Hypothesis Two: There is no significant difference in retention mean score of male and female students taught Social Studies using Thematic WebQuest Strategy.

Table 3:

Retention mean score of Upper Basic II Social Studies male and female Students

Gender	Group	Mean	Std. Dev.	N
Male	control	52.13	7.726	15
	Experimental	58.75	8.054	16
	Total	55.55	8.461	31
Female	control	47.96	9.227	23

	Experimental	57.55	9.237	20
	Total	52.42	10.326	43
Total	control	49.61	8.803	38
	Experimental	58.08	8.630	36
	Total	53.73	9.653	74

Source: Researchers SPSS output (2025)

Table 3 presents the retention mean scores of upper basic male and female students in Social Studies in Jos North, Plateau State. For experimental group, male had a mean 58.75 while the female had a retention mean score of 57.55. Male in the control group had a mean score 52.13 while female had 47.96. Focusing on our research, the male and female difference in retention mean score is statistically insignificant. which implies Thematic Webquest strategy has no disparity base on gender after the intervention.

Table 4

ANCOVA test of between subject effect for male and female students in the control and experimental group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1499.955 ^a	1	499.985	6.600	.001
Intercept	210310.515	1	210310.515	2776.303	.000
Gender	129.848	1	129.848	1.714	.195
Group	1180.215	1	1180.215	15.580	.000
Gender*Group	39.801	1	39.801	.525	.471
Error	5302.640	70	75.752		
Total	220432.000	74			
Corrected Total	6802.595	73			

a. R Squared = .220 (Adjusted R Squared = .187)

Source: Researchers SPSS output (2025)

The analysis of table 4 showed that $F(1, 70) .525, p > 0.05$. Since the p value of the main effect of gender is .195 therefore we fail to reject the null hypothesis. This suggest that there is no statistically significant difference in the effect of the teaching strategy between male and female students and that the strategy has similar effect on both male and females. This does not mean there is no difference at all but that the margin is small and not sufficient enough to conclude there is a significant difference.

Discussion

In this study, research hypothesis one was rejected due to a statistically significant difference that indicated an overwhelming gap in the two mean scores. The experimental group retains concepts longer than their counterparts in the control group. This result makes it safe to infer that the Thematic WebQuest strategy is significant for pedagogical purposes, and it enhances students' retention of concepts for a longer time. The finding aligns with that of Abildinova, Temirkhaniva, Kazhiakpanova & Abdullah (2025), who reported that using online inquiry-based learning in junior secondary school improves thinking skills and impacts learning outcomes by

35% and retention by 26%. Hence, it can be deduced that the Thematic WebQuest Strategy enhances students' retention.

The researcher fails to reject the null. Research hypothesis two, which stated, "There is no significant difference in the retention mean score of male and female students taught social studies using the thematic WebQuest strategy." This further suggests that there is no significant difference between the retention of male and female students taught using the Thematic WebQuest Strategy. The decision to fail to reject the null hypothesis is coherent with Pernet (2017), who asserts failing to reject the null hypothesis does not necessarily mean the null hypothesis is true. Instead, it indicates insufficient evidence to reject it. That failing to reject it, we simply assume that H_0 is true, which implies that one cannot argue against a theory from a nonsignificant result. Thus, it is safe to suggest that the intervention had a similar effect on both males and females and that the observed differences are likely due to chance. This agrees with the findings of Faisal, Olawale, & Adeyemi (2017), who found that there is no significant difference in academic performance based on gender, as they performed equally. Though a study by Li (2014) held that mental ability is greatly influenced by gender differences and that brain imaging studies showed different networks activating for males and females. Also, Vazquez-Cano, Sevillano-Garcia & Lopez (2017) find that males usually perform better in demonstrating competence in online information search processes than females. It is assumed that human beings process and that learning involves processing such information received from all senses. Research has also shown that learners have their strategies for transforming information into knowledge.

Conclusion

In conclusion, this study established that the Thematic WebQuest Strategy significantly enhanced retention among Upper Basic Two students and that such a positive outcome is not influenced by gender in any significant way. This further infers that the strategy is a viable pedagogical innovation for improving learning outcomes in social studies.

Recommendations

mandatory adoption of the strategy by social-studies teachers to deepen and prolong student conceptual retention; systematic provisioning of schools with robust digital infrastructure by government and administrators; formal integration of the strategy into the national curriculum by developers; and continuous, high-quality professional development that equips teachers to deploy the WebQuest approach and allied digital methods with mastery.

Limitations

The research is delimited only to two intact classes in Jos North, Plateau State. This could limit its generalizability.

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