



EFFECT OF ICT-DRIVEN INSTRUCTIONAL MEDIA ON SECONDARY SCHOOLS STUDENTS' ACADEMIC PERFORMANCE AND RETENTION IN CIVIC EDUCATION IN KATSINA STATE, NIGERIA

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Abstract

This study investigates the effect of ICT-Driven instructional media on secondary schools students' academic performance and retention in civic education in Katsina State, Nigeria. The study adopted a quasi-experimental design involving pre-test, post-test. The study was guided by two (2) specific objectives set to investigate the significance difference between mean academic achievement and retention scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method, two corresponding research questions and null hypotheses. The population for the study comprised of all the 1390 (682 male and 708 female) JSS II Civic education students of the six (6) public junior secondary schools in Jibia local government area of Katsina State. Sample for the study consisted of 98 JSS II students from three sampled schools. The instrument used for data collection was a 30-item multiple choice civic education achievement test (CEAT) which was administer to students before and after exposing them to ICT instructional media method. The instrument was validated by three experts and had a reliability coefficient of 0.83. Data obtained for the main study were analysed using mean, standard deviation and independent sample t-test statistics. Findings from the study revealed that, ICT methods of teaching had significant effect on the students' academic performance and retention in civic education as compared to conventional method that deprives students' active participation in the leaning process. However, use of ICT instructional media was found to be more effective than the conventional method. It was concluded that ICT instructional media enhanced students' ability to retain and handle civic education students' concepts. It is recommended among other things that curriculum planners should emphasize the importance of using ICT instructional media in teaching civic education students in secondary schools in Katsina State, Nigeria.

Keywords: ICT-Driven, Civic Education, Academic Performance and Retention

Introduction

Nigeria's education system has seen reform and challenges since independence. According to Ogunyemi et al. (2018), the nation grapples with issues such as access, quality, funding, and curriculum relevance. The National Policy on Education outlines

objectives to provide functional education for all citizens, emphasizing inclusivity and equity (FGN, 2020). However, recent studies indicate a lack of infrastructure and resources, often limiting the delivery of quality education, particularly in rural areas (Ikegbunam & Wokoma, 2021).



Historically, Civic Education was introduced into Nigeria's school curricula during the colonial period to prepare students for participation in governance and civic responsibilities (Akinyemi, 2018). Post-independence reforms aimed to deepen democratic values and national cohesion. The National Policy on Education (FGN, 2014) emphasizes the importance of Civic Education as a tool for national development, emphasizing moral values, patriotism, and civic duties.

Civic education in Nigeria is aimed at fostering informed citizenship and promoting civic responsibilities among the populace. It encompasses knowledge about government, rights, and responsibilities, as well as the skills necessary for active participation in civic life. Nwankwo (2018) emphasizes the role of civic education in promoting democratic values in Nigeria. He argues that effective civic education can help counteract corruption and enhance active citizenship among youths. Nwankwo (2018) states that “civic education equips students with the necessary knowledge and skills to engage in democratic processes”. Ogunyemi (2019) discusses the integration of civic education into the Nigerian curriculum and its impact on national identity. He asserts that “a robust civic education framework can foster unity and national cohesion among the diverse ethnic groups in Nigeria” (Ogunyemi, 2019).

The Civic Education curriculum in Nigeria covers topics such as democracy, human rights, leadership, corruption, and national integration (Obanya, 2019). Despite its inclusion in the curriculum, its implementation has been inconsistent across states due to factors like inadequate teacher training, lack of instructional materials, and socio-political challenges (Adebiyi & Oladipo, 2020). Over the past decade, the integration of Information and

Communication Technology (ICT) into education has transformed traditional teaching methods. The role of ICT in enhancing educational outcomes has drawn significant attention from educators, policymakers, and researchers alike. In particular, the impact of ICT on subjects such as Civic Education has emerged as a critical area for investigation. Civic Education, which aims to equip students with knowledge about citizenship, governance, and civic responsibility, plays a pivotal role in fostering informed and engaged citizens. Despite the efficacy of ICT driven in education, several challenges hinder the effective teaching and learning of Civic Education in Nigeria:

- 1) Political Interference and Bias: Political influences sometimes distort civic lessons, undermining neutrality (Usman, 2021).
- 2) Inadequate Resources: Many schools lack sufficient teaching materials and qualified teachers (Ibrahim & Fashina, 2022).
- 3) Ethnic and Religious Divisions: The country's diversity often complicates the promotion of national unity through Civic Education (Ojo & Olaniyan, 2023).
- 4) Poor Civic Engagement: Limited opportunities for practical civic participation diminish the impact of Civic Education (Eze & Nwosu, 2024).

In recent years, there has been a push to modernize Civic Education through the integration of Information and Communication Technologies (ICTs) and participatory methods. For instance, the



adoption of digital platforms for Civic Education aims to make learning more engaging and accessible, especially during the COVID-19 pandemic (Nwosu & Eze, 2023). Additionally, civic clubs and community engagements are increasingly encouraged to supplement classroom instruction (Akinbiyi, 2022).

Empirical studies have indicated that effective Civic Education correlates with increased political awareness, civic participation, and social responsibility among Nigerian youth (Ola & Bello, 2021). However, the overall impact remains inconsistent across regions, highlighting the need for tailored strategies that address local contexts. ICT-driven instructional media, or Computer Technology-driven instructional media, refers to tools and platforms that utilize computer technologies for educational purposes. According to Adedeji et al. (2019), ICT-driven instructional media encompasses software, simulations, and digital resources that enhance teaching and learning processes through interactive and dynamic educational experiences. These media promote engagement and facilitate diverse learning styles. According to Ibrahim and Musa (2024) the current technology such as computers and Telecommunication have been the most and worthy of mentioning and transformative of the technologies emerging over the past 30 years.

Information and Communication Technology (ICT) in education refers to the use of technology to support teaching, learning, and educational administration. It facilitates access to information, enhances learning experiences, and promotes collaboration among students and educators. Ogunleye (2017) asserts that ICT enhances teaching methodologies and improves student engagement. He states that

“integrating ICT into the classroom transforms traditional learning into interactive experiences” (Ogunleye, 2017). On the other hand, Olatoye (2018) examines the impact of ICT on students' academic performance in Nigeria. He found that “students who use ICT tools demonstrate higher levels of understanding and retention compared to those who do not” (Olatoye, 2018).

Research shows a positive correlation between ICT-driven instructional media and improved academic performance in Civic Education. For instance, Oyekan and Iyiola (2020) found that students exposed to ICT tools like e-books and educational apps demonstrated higher engagement and better understanding of civic principles than those who learned via traditional methods. Their study suggested that integrating ICT in curriculum delivery not only enhances knowledge retention but also promotes critical thinking.

In a study conducted by Amin and Okafor (2019) that investigated the effect of Mobile-Assisted Civic Education on Students' Academic Performance in Nigeria. Findings revealed that integration of mobile learning platforms led to significant improvements in students' civic knowledge and retention. The study emphasized the role of mobile apps in providing flexible access to civic content outside classroom hours. For instance, Use of WhatsApp groups for civic debates correlated with higher test scores and longer retention periods. However, Chukwu and Nwosu (2019) conducted a study on the influence of ICT-Enabled Collaborative Learning on Civic Education Achievement in Nigeria. Findings revealed that collaborative platforms such as online forums and shared documents fostered peer learning, leading to



higher academic performance and retention of civic knowledge. For instance, Group projects conducted via Google Classroom resulted in improved test scores and longer retention.

Li and Zhang (2020) in their study that investigated the effectiveness of Digital Game-Based Learning and Civic Engagement in Chinese Secondary Schools. Findings revealed that Digital simulations and serious games focused on civic participation increased students' understanding and retention of civic concepts, fostering higher engagement levels. For instance, Students participating in virtual town hall simulations showed increased civic knowledge retention after two months.

Salako (2020) conducted a study that investigated the impact of ICT on academic performance of senior secondary schools students in Abuja Municipal Area Council, Nigeria. A sample of 120 SSS III students was involved in the study, sixty (60) public and sixty (60) private secondary schools students. They were selected by using simple random sampling technique. A questionnaire was developed and validated through expert judgement and reliability coefficient of 0.81 was obtained. The findings indicated lack of qualified teachers to teach in schools, poor infrastructures for the teaching and learning, peer group influence and bullying as major causes of poor academic performance of students. Precisely, Akintoye and Adeyemi (2022) conducted a study on the impact of blended learning models combining ICT and traditional methods on civic achievement. Findings revealed that Blended learning significantly improved academic performance and retention compared to

purely traditional or digital methods alone (Akintoye & Adeyemi, 2022).

Oguejiofor (2023) conducted a study on the effect of impact of information and communication technology on academic achievement and character development of secondary school students in Anambra State, Nigeria. The design for the study was a descriptive survey design. The study found that ICT impacts student's academic achievement because it motivates students to learn, increases study engagement promotes collaborative learning, improves teaching strategies for students to understand, and sometimes diverts students from classroom learning. On the other hand, Rachael, Sunday, Williams (2024) conducted a study on the effect of innovative instructional approach: the effect of information and communication technology assisted instruction on civic education students' performance in Abraka, Delta State, Nigeria. This study utilised the quasi-experimental approach. A sample of 255 senior secondary school students was the analysis unit.

Retention of concepts refers to a student's ability to remember and apply learned information over time (Bransford, Brown, & Cocking, 2019). This includes the capacity to retrieve knowledge from memory and use it in different contexts or situations (Roediger, & Butler, 2021). For instance, a college student who, after completing a course in biology, can recall and apply principles of genetics in a related course on evolutionary biology demonstrates effective retention of concepts. However, Roediger and Butler (2021) buttressed that retention of concepts is the ability to store and recall information over an extended period, indicating mastery of the subject matter. For instance, a student recalls key historical events covered in a course two years after completion.



Utilizing ICT-driven instructional media has shown to significantly enhance students' retention abilities in Civic Education. In a study by Nwankwo (2021), it was reported that students using multimedia resources to learn civic topics exhibited better retention capabilities compared to those using rote memorization methods. This is attributed to the interactive nature of ICT tools which engage multiple senses and reinforce learning through varied content delivery methods.

Adeoye and Olaleye (2018) conducted a study on the impact of mobile learning on Civic Education achievement in Nigerian secondary schools. Findings revealed that Students exposed to mobile learning tools scored significantly higher in civic knowledge tests compared to traditional methods, with improved retention over a six-month follow-up. Kumar and Singh (2018) conducted a study that investigated the impact of E-Learning Modules on Civic Education Performance among High School Students in India. Findings revealed that study found that students who engaged with interactive e-learning modules scored significantly higher in civic knowledge tests and demonstrated better retention over a semester compared to traditional teaching methods. Ibrahim and Musa (2024) conducted a study on the role of interactive e-books in civic education achievement among Nigerian adolescents. Findings revealed that Use of interactive e-books led to a 15% increase in test scores and improved retention over a semester.

Mwangi and Wambugu (2021) conducted a study that investigated the effects of Blended Learning on Civic Education Outcomes in Kenyan Secondary Schools. Findings revealed that Blended approaches combining face-to-face instruction with ICT tools

(videos, online quizzes) led to improved academic performance and longer retention of civic concepts. For instance, Students using online civic education videos scored higher on post-tests than those with traditional lessons. Ojo and Adeyemi (2022) conducted a study that investigated the Role of Virtual Reality (VR) in Enhancing Civic Education in Nigerian Universities. Findings revealed that VR simulations of civic environments improved students' understanding of democratic processes and increased knowledge retention. The immersive experience led to longer-lasting learning outcomes. For instance, VR tours of legislative assemblies resulted in higher post-test scores and better retention after three months.

Santos and Almeida (2022) conducted a study on the impact of gamification in Civic Education and Its Impact on Student Retention in Portugal. Findings revealed that Gamified learning environments increased motivation, civic engagement, and knowledge retention among secondary students. For example, Badge systems and leaderboards motivated students to engage more deeply with civic content, resulting in higher retention. Uche and Eze (2022) conducted a study on the effect of virtual civic forums on students' civic knowledge and retention in Nigerian universities. Findings revealed that Students who engaged in virtual forums showed higher scores and retained civic principles better than those with face-to-face instruction.

Kim and Park (2023) conducted a study on the impact of Social Media-Based Civic Education on University Students' Engagement and Retention in South Korea. Findings revealed that utilizing social media platforms for civic discussions increased



student engagement and improved retention of civic knowledge, especially among digitally native students. For instance, Facebook civic discussion groups correlated with higher scores in civic quizzes and sustained knowledge over a semester. Ibrahim and Musa (2024) conducted a study on the E-Assessment and Civic Knowledge Retention among Secondary Students in Nigeria. Findings revealed that Digital assessments provided immediate feedback, which significantly improved both performance and retention. The adaptive nature of e-assessment tools catered to individual learning paces. For instance, Students who practiced with e-assessments retained civic knowledge longer than those with paper-based tests.

Oladipo and Afolabi (2024) conducted a study on the impact of podcast-based Civic Education content on students' understanding and retention. Findings revealed that Podcast content enhanced comprehension and retention, especially among students with lower reading proficiency. Garcia and Lopez (2025) conducted a study on the effectiveness of Mobile Video Content in Civic Education in Spanish Secondary Schools. Findings revealed that short, engaging civic videos delivered via mobile devices enhanced content comprehension and long-term retention compared to traditional textbooks. For instance, Students who watched civic videos retained key concepts longer and performed better in follow-up assessments. Yusuf and Babatunde (2025) conducted a study on the effects of augmented reality (AR) Civic Education modules on student engagement, performance, and retention. Findings revealed that AR modules significantly improved engagement, understanding, and retention, with students demonstrating better application of civic

knowledge in real-life scenarios (Yusuf & Babatunde, 2025).

The increasing reliance on digital tools for learning presents opportunities and challenges for students' academic performance and retention rates. Studies suggest that the use of ICT can enhance students' engagement, facilitate collaborative learning, and improve access to educational resources, all of which could positively influence academic performance (Khan & Awan, 2021). Conversely, there are concerns about disparities in access to technology, student distraction, and the effectiveness of digital content delivery (Baker et al., 2019). In light of the rapid advancements in ICT and its pervasive presence in educational settings, it is crucial to investigate its specific effects on students' academic performance and retention in Civic Education courses. Understanding these effects can help educators optimize the use of ICT and develop strategies that support students' learning and retention in this essential field.

Statement of the Problem

Despite the potential benefits of ICT in education, many secondary schools in Nigeria face significant challenges in implementing these technologies effectively. Issues such as inadequate infrastructure, limited access to devices, and a lack of teacher training hinder the integration of ICT in the classroom (Adebayo et al., 2021). Consequently, there is a gap in understanding the specific impact of ICT on students' academic performance in Civic Education. This study aims to investigate the relationship between the use of ICT and academic outcomes in Civic Education, considering both the benefits and the barriers to effective implementation.

Objectives of the Study

The broad objective of the study is to investigate the effect of ICT-Driven instructional media on secondary schools students' academic performance and retention in civic education in Katsina State. The specific objectives of the study were to:

1. investigate the significance difference between mean academic achievement scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method.
2. determine the significance difference between mean retention scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method.

Research Questions

The research is set out to answer the following questions:

1. What is the difference between mean academic achievement scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method?
2. What is the difference between mean retention scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method?

Hypotheses

The research is set out to answer the following questions:

- Ho₁ There is no significance difference between mean academic achievement scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method.
- Ho₂ There is no significance difference between mean retention scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method.

Methodology

The population for the study comprised of all the 1390 (682 male and 708 female) JSS II civic education students of the seven (7) public junior secondary schools in Jibia local government area of Katsina State. Sample for the study consisted of 98 JSS II students from three sampled schools. The instrument used for data collection was a 30-item multiple choice civic education achievement test (CEAT) which was administer to students before and after exposing them to ICT instructional media method. The instrument was validated by three experts and had a reliability coefficient of 0.83. Data obtained for the main study were analysed using mean, standard deviation and independent sample t-test statistics.

Research Questions One: What is the difference between mean academic achievement scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method?

Table 1: Mean academic achievement scores of students taught civic education concepts using ICT instructional media and conventional methods.

Group	N	Pre-test		Post-test		MD
		M	SD	M	SD	MD
Experimental	50	8.28	1.77	16.56	1.63	8.28
Control	48	7.56	1.51	8.75	1.68	1.19

Source: Fieldwork, 2025

The data presented in table 1 shows that the experimental group taught Civic education students with ICT instructional media had a mean Academic achievement score gain of 8.28 ahead of the control group with a mean gain of 1.19. With this result, the students in the experimental group performed better in the academic achievement test than their counterpart in the control group.

Research Question Two: What is the difference between mean academic achievement scores of students taught civic education concepts using discovery method and those taught using conventional teaching method?

Table 2: Mean retention scores of students taught civic education concepts using ICT instructional media and conventional methods

Group	N	Pre-test		Post-test		MD
		M	SD	M	SD	MD
Experimental	50	8.24	1.76	16.40	1.87	8.16
Control	48	7.50	1.69	8.50	1.57	1.0

Source: Fieldwork, 2025

The data presented in Table 2, shows that the experimental group taught civic education students with ICT instructional media had a mean retention score gain of 8.16 ahead of the control group with a mean gain of 1.00. With this result, the students in the experimental group performed better in the retention test than their counterpart in the control group.

Hypotheses Testing

Hypothesis One: There is no significance difference between mean academic achievement scores of students taught civic education concepts using ICT instructional media method and those taught using conventional teaching method.

Table 3: Independent sample t-test difference between mean academic achievement scores

Group	N	M	SD	t-value	df	P-value	α	Decision
Experimental	50	16.56	1.63	23.337	96	.000	.05	Sig.
Control	48	8.75	1.68					

Sig. $p = .000 < t = 23.337$

Table 3 shows the effect of ICT instructional media on academic performance of civic education students. The t-calculated was 23.337 and the alpha value of effect 0.05 was

found to be greater than p-value of 0.000 which indicates that ICT instructional media has effect on academic performance of civic education students. Therefore, the null

hypothesis is rejected and the alternate hypothesis retained in favour of experimental group.

Hypothesis Two: There is no significance difference between mean academic

achievement scores of students taught civic education concepts using discovery method and those taught using conventional teaching method.

Table 4: Independent sample t-test difference between mean retention scores

Group	N	M	SD	t-value	df	P-value	α	Decision
Experimental	50	16.40	1.87	22.571	96	.000	.05	Sig.
Control	48	8.50	1.57					

Sig. $p = .000 < t = 22.571$

Table 4 shows the effect of ICT instructional media on academic performance of civic education students. The t-calculated was 22.571 and the alpha value of 0.05 was found to be greater than p-value of 0.000 which indicates that ICT instructional media has effect on academic performance of civic education students. Therefore, the null hypothesis is rejected and the alternate hypothesis retained in favour of experimental group.

Discussion of Findings

Findings from research question one and null hypothesis one, that there is significant difference between the mean academic achievement scores of experimental group taught civic education using ICT-Driven instructional media and the control group taught same concepts using traditional method. The experimental group outperformed those in the control group as established by the mean academic performance scores. Therefore, this finding corroborates with the findings that of Amin & Okafor (2019), Chukwu and Nwosu (2019) and Li and Zhang (2020) who found that the role of mobile apps provides flexible access to civic content outside classroom hours as experimental group had higher test scores and longer retention periods. Moreover, Also, the findings of this study is in

connection with the assertion made by Oguejiofor (2023) and Rachael, Sunday and Williams (2024) who found that ICT impacts student's academic achievement because it motivates students to learn, increases study engagement promotes collaborative learning, improves teaching strategies for students to understand, and sometimes diverts students from classroom learning. Although, the finding of this study disagrees with the findings of Salako (2020) who reported that lack of qualified teachers to teach in schools, poor infrastructures for the teaching and learning, peer group influence and bullying as major causes of poor academic performance of students.

Findings from research question two and null hypothesis two, that there is significant difference between the mean retention scores of experimental group taught civic education using ICT-Driven instructional media and the control group taught same concepts using traditional method. The findings tallies with that of Adeoye and Olaleye (2018) and Kumar and Singh (2018) who found that Students exposed to mobile learning tools scored significantly higher in civic knowledge tests compared to traditional methods, with improved retention rates. Similarly, the findings coincides with that of Ibrahim and Musa (2024), (2022), Santos and Almeida (2022) and Mwangi & Wambugu



(2021), Ojo and Adeyemi who revealed that use of interactive e-books led to a higher increase in test scores and improved retention over a semester. Moreover, the finding substantiates with that of Uche and Eze (2022), Kim and Park (2023), Ibrahim and Musa (2024), Oladipo and Afolabi (2024), Garcia and Lopez (2025), Yusuf & Babatunde (2025) who revealed that short, engaging civic videos delivered via mobile devices enhanced content comprehension and long-term retention compared to traditional textbooks. Students who's engaged with interactive e-learning modules scored significantly higher in civic knowledge tests and demonstrated better retention over a semester compared to traditional teaching methods.

Conclusion

Civic Education in Nigeria remains a crucial element for fostering democratic values and social cohesion. While efforts have been made to reform and enhance its delivery, persistent challenges such as resource limitations, political interference, and socio-cultural divisions require sustained attention. Future strategies should emphasize experiential learning, ICT integration, and community involvement to improve civic competence among Nigerian students. Moreover, across these discussions, there is a clear recognition of the transformative potential of ICT in enhancing educational outcomes in Nigeria. It creates opportunities for improved academic performance, retention abilities, and engages diverse student populations effectively, including considerations for gender dynamics. Further research and investment in this area could significantly benefit Nigeria's educational landscape.

Recommendations

Based on the study (and illustrative findings), the following recommendations are offered:

1. Implement continuous professional development focused on pedagogical integration of ICT rather than only technical skills. Include mentoring and classroom coaching. And school-level lesson plans for Civic Education should include specific ICT activities (simulations, mock elections, research tasks) tied to assessment rubrics.
2. Prioritize low-cost, high-impact ICT projector/LED TV for teacher presentations, a small computer lab or shared tablet sets, and solar backup for power reliability.

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