EFFECT OF INDIVIDUALIZED COMPUTER ASSISTED INSTRUCTION ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC PERFORMANCE AND RETENTION IN CIVIC EDUCATION IN NIGER STATE

BY

A. A. USMAN
Social Studies Section
Department of Arts and Social Science Education
Ahmadu Bello University Zaria
+2347037376780

AND

DR. Z. S. GAYA
Social Studies Section
Department of Arts And Social Science Education
Ahmadu Bello University Zaria
zulyadainsanigaya@gmail.com, +2347030622530

Abstract

The paradigm shift in teaching Civic Education de-emphasized the chalk and talk conventional teaching method that is teacher centred because it relegate learners at passive state in the learning process. Hence, this paper investigated the effect of CAIP supported individualizes learning strategy on the academic performance and retention of senior secondary school student in Civic Education in Niger State. Senior secondary school students were the target population for the study. Two public senior secondary schools were involved in the study. The sample size was one hundred (100) students drawn from multi-stage sampling procedures. The researcher designed Computer Assisted Instruction Package (CAIP) and Civic Education Academic Performance Test (CEAPT) were the instruments used for data collection. The instrument undergoes content validity which was followed by pilot test that gave reliability index of 0.83. Descriptive statistics mean was used to answer research questions while inferential statistics independent t-test was used to test the two hypotheses at 0.05 level

of significance. The findings revealed that, senior secondary school students in Civic Education taught using CAIP supported individualizes learning strategy performed better academically than those taught with lecture method. The study further confirmed that, senior secondary school students in Civic Education taught using CAIP supported individualizes learning strategy retain better than those taught with lecture method. Thus, the study recommended that CAIP supported individualizes learning strategy should be employed and used by the civic education teachers to enhance better academic performance and retention of the Civic Education students. The need to minimize the use of lecture method is also recommended by the study to promote students' academic performance and retention level.

Keywords: CAIP, Individualized learning strategy, academic performance, retention.

Introduction

Civic education can be defined as the teaching and learning of the rights and responsibilities of citizens in a democratic society to enable them to actively participate on decisions that affect them and their country (Manuwa, 2023). Civic Education was introduced with the aims of revamping the students and citizens from the scourge of low political awareness and social evils through the development of civil qualities of knowledge, skills and values acquired. Hence effective teaching cannot be over emphasized.

Saadu (2020) and King (2016) viewed individualized instruction as the learning strategy where instructional resources, and assessments are designed to meet the instructional needs of one particular student. Individualized instruction is a teaching strategy in which students get primary control over what they studies based on the choose duration, location, time and who they wishes to learn with (Dawal, 2021). Nnamani and Oyibe (2016) stated that, individualized learning strategy pave ways for students to learn and progress at their own pace; reduce the rate of failures and dropouts in the school system; provide an opportunity for every students/learners to develop good study habits; be creative and enjoy learning activities; be independent and more actively involved in their own learning and take more responsibility for themselves. Individualized

learning allows learner to pursue his own learning in his way and at his own speed in line with psychological knowledge of individual differences (Iluobe, & Garba, 2022). This strategy personalizes instruction to the needs and learning style of the learner by varying the pace of instruction and allowing learners to progress through content at their own pace, more knowledge is retained and less time is wasted. Here, fast and slow learners progresses at their pace because they learn at different levels through different instructional media and meet their instructional needs (Ali, Adamu & Onyemaechi, 2022). Individualized learning strategy gives students the opportunity to engage actively in the teaching and learning process; helps students in meeting the differences in individual learning styles and rates; provides the students the opportunity to grow in self-discipline, self-motivation and also presents occasions for genuine interaction between the teacher and students, which is lacking in the traditional method of teaching (David, 2019).

Empirical research studies revealed that, there was a significant difference between the achievements of students taught using individualized instruction than those taught with conventional method. Also, the study of Saadu (2020) and Gabriel, Osuafor, Cornelius, Obinna, and Francis (2018). The study of Sedega *et al.* (2017 and Onasanya and Eze (2016) shown that, no significant difference in the performance of students who are exposed to individualized CAI packages and those taught by the conventional method of instruction.

There are many factors that can affect students' academic performance either positively or otherwise and unless those factors are adequately addressed, improved in students' academic performance will remain a mirage. Asoka, Ali, and Ferdous (2018) defined academic performance to be students' success in achieving educational goals and reflects how well students achieve the standards set by an academic institution or by the local educational authorities. Factors such as location of the school, government instability, closure of schools, high student teacher ratio, lack of supportive supervision, poor content and context of instruction, poor and non-conducive environment among others as the causes of poor students' academic performance. Akpan (2020) identified instructional materials, quality assurance control, staff and students' welfare and good public communication as factors that improve students' academic performance.

Also, several studies have revealed low students' retention rate at the senior secondary school level in Nigeria. Those studies attributed the causes of students' poor retention capacity to the use of inappropriate and ineffective teaching methods such as lecture method (Ajayi & Angura, 2017). Saidu, Abdulmalik, and Judith (2020) stated that, the ability to store and remember ideas and facts is termed as retention. It can be measured through verbal recall of learnt materials, and explained that concepts learnt assist in reflective thinking and that retained concepts can be used in creative ways to solve new problems (Saidu *et al*., 2020). Egbunu, Agbo-Egwu, and Anyagh (2017) identified students' interest, self-esteem, curricular materials, students' attitude etc. that determined retention. Chinwendu and Nnoduka (2020) in their study found that blended learning increased the retention of knowledge by students. Egbunu *et al* (2017) and Adedoja & Fakokunde (2015) reported that, the students exposed to computer-based self-learning instructional strategy has higher retention mean score than their counter part in conventional method.

On the contrary, lecture method sees teacher as authority of knowledge leaving student at passive mode in the teaching process. The method does not permit student to student interaction. This can lead to poor academic performance and retention of the content taught to be learnt by the students. Because this approach allow the teachers to talk at the students instead of encouraging them to interact and ask questions, the result from this method keep students passive in the learning process. Hence academic performance and retention will be retarded. Lecture method allows the teacher does all the talking, and the learners do all the listening (Adeyemi, 2012). Meanwhile, the integration of computer into teaching process permit multi-sensory activeness in the learning process. In this way, computer has been used by individual student or group depends on the nature of content to learn and teacher instructional design. This is to overcome the chalk and talk approach that has been found inimical to effective teaching and learning process. Hence, the study examined the effect of computer assisted instruction package supported individualizes learning strategy on the academic performance and retention of senior secondary students in civic education in Niger state.

The study aim to investigate:
i.   Effect of CAIP supported individualizes learning strategy on academic performance of senior secondary schools in civic education in Niger state.
ii.   Effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in civic education in Nigger state.

Research Questions
i.   Is there effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger state?
ii.   What is the effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger state?

Research Hypotheses
The researcher formulated the following null hypotheses for testing at 0.05 level of significance.
1.   There is no significance effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger state.
2.   There is no significant effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger state.

Methodology
The researcher used quasi-experimental design as shown in table 1layout below.

Table 1: Quasi-Experimental Design Layout

Group	Pre Test	Treatment	Post Test	Post Post-Test
G_1	O_1	X_1	O_3	O_5
G_2	O_2	-	O_4	O_6

Source: Researcher Field Work, 2023

G$_1$ An experimental Group that will receive the treatment from the CAIP supported by individualized learning strategy.

G$_2$ A control Group that will not receive the treatment from the CAIP.

O$_1$ Pre-test administered to experimental group to be taught using CAIP supported collaborative learning strategy.

O$_2$ Pre-test administered to control group to be taught using lecture method.

X$_1$ CAIP exposed to the experimental group as the treatment using individualized learning strategy group.

-    Lesson deliveries using lecture method group.

O$_3$ Post-test administered to experimental group taught using individualized learning strategy.

O$_4$ Post-test administered to control group

O$_5$ Post post-test administered to experimental group of individualized learning strategy group to measure retention.

O$_6$ Post Post-test administered to control group to measure retention.

The target population was senior secondary school civic education students in Niger state. Multi stage sampling techniques was used to select two (2) senior secondary to drawn a sample size of one hundred (100) students based on central limit theory. The one hundred sample size was at fifty (50) per school with purposive selection of one of the schools based on the availability of functional ICT facilities for experimental group. The researcher designed Computer Assisted Instruction Package (CAIP) and Civic Education Academic Performance Test (CEAPT) as the instrument used for data collection. Both the instruments were validated after developed. A pilot study was conducted and final copy drafted. A pre-test was conducted before instructional delivery to run extraneous variable. Post test was conducted to measure academic performance while post post-test was conducted to measure academic retention. The scoring was 2 marks for each correct answer to give 100 marks for 50 test items. Mean was used to answer research questions while independent t-test was used to test the hypotheses.

Results

Research Question One: Is there effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger state?

To answer this research question, the data collected was subjected to descriptive statistics of mean and standard deviation. Table 2 presents summary of the result.

Table 2: Summary of Means and Standard deviations on effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger State.

GROUP	N	Pre-Test Mean	SD	Post-Test Mean	SD	Post-Test Mean Diff
CAIP supported Individualizes Learning Strategy	50	34.70	10.555	57.36	7.564	4.16
Lecture Method	50	33.40	11.203	53.20	10.887	

Source: Researcher Field Work, 2023

Table 2 shows the students' performance score before and after their engagement with the treatment. In the pre-test, CAIP supported individualizes learning strategy group had a mean score of 34.70 while their counterpart in lecture method group had a mean score of 33.40 which demonstrates homogeneous academic performance. In the post-test, the students taught using CAIP supported individualizes learning strategy had a mean score of 57.36 while their counterpart taught using lecture method had a mean score of 53.20. There was a mean score difference of 4.16 in favour of the CAIP individualized learning strategy group. Thus, students' academic performance after the treatment intervention had positive significant effect. This indicates that students taught Civic Education using CAIP supported individualized learning strategy outperformed those taught using lecture method. This implies that, there is effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger state. The use of CAIP supported individualizes learning strategy in teaching Civic Education influence better academic performance among students than using lecture method.

Research Question Two: What is the effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger State?

179

To answer this research question, the data collected was subjected to descriptive statistics of mean and standard deviation. Table 8 presents summary of the result.

Table 3: Summary of Means and Standard deviations on effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic education in Niger State.

GROUPS	N	Mean	SD
Lecture Method	50	53.20	10.887
CAIP supported individualized learning strategy	50	59.48	11.283

Source: Researcher Field Work, 2023

Table 3 shows that students taught using CAIP supported individualized learning strategy had a mean score of 59.48 while their counterpart taught using lecture method had a mean score of 53.20. This indicates that, there was a difference in the retention level between senior secondary school Civic Education students taught using CAIP supported individualized learning strategy and those taught with lecture method in Niger state. This implies that, there is effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger state. The use of CAIP individualizes learning strategy in teaching Civic Education promote better retention ability among Civic Education students than individualized learning strategy.

Hypothesis One: There is no significance effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger state.
To test this hypothesis, the data collected was subjected to inferential statistics of independent sample t-test. Table 4 presents summary of the result.

Table 4: Summary of Independent Samples t-test on effects of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger State.

GROUP		N	Mean	SD	T	df	P
CAIP individualized Strategy	supported Learning	50	57.36	7.564	2.219	98	.029
Lecture Method		50	53.20	10.887			

Source: Researcher Field Work, 2023

Table 4 shows that t = 2.219, df = 98, p = .029 < α = 0.05. This indicates that the probability value (p) is lesser than the alpha level of significance (p < 0.05). Therefore, since the p value is less than the alpha level, the null hypothesis is rejected. This indicates that, there was a significant effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger State.

Hypothesis Two: There is no significant effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger State.

To test this hypothesis, the data collected was subjected to inferential statistics of independent sample t-test. Table 5 presents summary of the result.

Table 5: Summary of Independent Samples t-test on effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger state

GROUP		N	Mean	SD	T	df	P
CAIP individualized Learning Strategy		50	53.20	10.887	-2.832	98	.006
CAIP lecture method		50	59.48	11.283			

Source: Researcher Field Work, 2023

Table 5 shows that t = -2.832, df = 98, p = .00 < α = 0.05. This indicates that the probability value (p) is lesser than the alpha level of significance (p < 0.05). Therefore, since the p value is lesser than the alpha

level, the null hypothesis is rejected. This indicate that, there was a significant effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic Education in Niger state.

Discussion of Findings

This study investigated the effects of computer instruction package on students' academic performance and retention ability. In this study, variables such as individual learning strategy and lecture method were examine to ascertain their individual effect on academic performance and retention of students. The findings that emanate from this study are astonishing. These finding are discussed below:

On research question two, this study found that use of CAIP supported individualized learning strategy in teaching Civic Education promote better academic performance among secondary school students than those taught with lecture method in Niger State. Evidently, the descriptive statistics indicates that the mean score of students taught Civic Education using CAIP supported individualized learning strategy is 57.36 higher than their counterpart taught using lecture method that had a mean score of 53.20. Authenticating this finding, the corresponding hypothesis found that there was significant effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic Education in Niger State. This means that students taught Civic Education using CAIP supported individualized learning strategy performed better than those taught with lecture method. The implication of this finding is to theory and practice in education is that CAIP supported individualized learning strategy is a method of teaching through which students' academic performance can be enhanced therefore; teachers should embrace and use it for better students' performance. This finding collaborates with of Gabreil et al (2018), and Onasanya and Eze (2016) who found that individualized instructional strategy is better than conventional lecture method.

On research question Two, this study found that, CAIP supported individualized learning strategy in teaching Civic Education promote better retention ability in Civic Education students than lecture method among secondary school students in Niger state. Noticeably, the descriptive statistics indicates that the mean score of students taught Civic Education

using CAIP supported individualized learning strategy is higher than their counterpart taught using lecture method. The corresponding hypothesis verifies that there was a significant effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in civic Education in Niger State. This means that students taught Civic Education using CAIP supported individualized learning strategy is superior to those taught with lecture method in regards to retention ability of students. The implication of this finding to theory and practice in education is that CAIP supported individualized learning strategy promote retention ability of students than those taught with lecture method. Therefore; teachers should embrace and use it for better students' academic retention. The finding of Gabriel *eta l.* (2018), and Onasanya and Eze (2016) attested to this finding because they found individualized learning strategy is superior to lecture method. In contrary, the study of Sedega et al. (2017) revealed that the traditional lecture method of teaching seemed superior to the CAI method in teaching.

Conclusion
Based on the analysis, the following conclusion were drawn from the study:
1) There was a significant effect of CAIP supported individualizes learning strategy on academic performance of senior secondary school students in Civic education in Niger state.
2) There was a significant effect of CAIP supported individualizes learning strategy on retention level of senior secondary school students in Civic education in Niger State.

Recommendations
Based on the findings of this study, it is recommended that that Civic education teachers should endevour to employ and use CAIP supported individualized learning strategy in teaching civic education to enhance better academic performance and retention of the civic education students. The study also established the need to minimize the use of lecture method to promote students' academic performance and retention.

References

Adedoja, G. O. & Fakokunde, J. B. (2015). Effects of Computer-Based Instructional Puzzle on Students' Learning Outcomes and Retention in Social Studies. *International Journal of Humanities and Social Science,* Vol. 5(11). http://www.ijhssnet.com/journals/Vol_5_No_11_November_2015/19.pdf

Adeyemi B. A. (2012). Effects of Computer Assisted Instruction (CAI) on Students' Achievement in Social Studies in Osun State, Nigeria. *Mediterranean Journal of Social Sciences.* 3 (2). Doi:10.5901/mjss.2012.v3n2.269.

Ajayi, O. V. & Angura, T. M. (2017), Improving Senior Secondary Students' Retention in Electrolysis Using Collaborative Concept Mapping Instructional Strategy (CCMIS). *Greener Journal of Educational Research,* Vol, 7 (6). file:///C:/Users/HP%20PRO/Downloads/Ajayiangura1.pdf

Akpan, O. E. (2020). Social Variables as a Determining Factor for Improved Academic Performance of Students in Social Studies in Nigerian Schools. *British Journal of Education Vol. 8(10).* https://www.eajournals.org/wp-content/uploads/Social-Variables-as-a-Determining-Factor-for-Improved-Academic-Performance-of-Students-in-Social-Studies-in-Nigerian-Schools.pdf

Ali, G. T., Adamu, I. J. & Onyemaechi, M. S. (2022). Effectiveness of Computer as Individualized Instructional Method in Education: A Study of Ekwusigo. In *Global Journal of Applied, Management and Social Sciences (GOJAMSS)*; Vol.24. file:///C:/Users/Microsimafx/Downloads/826-3059-1-PB.pdf

Asoka, D. Ali, K. & Ferdous A. S. M. (2018). What Factors Affect Secondary School Students' Performance in Science in the Developing Countries? A Conceptual Model for an Exploration. *European Journal of Education Studies,* Vol. 4(6). Doi: 10.5281/zenodo.1239967

Chinwendu, O. & Nnoduka, O. C. (2020). Effect of Blended Learning on Students' Retention of Physics in Federal Colleges of Education in South East, Nigeria. *International Journal of Education, Learning and Development* Vol. 8(1). https://www.eajournals.org/wp-content/uploads/Effect-of-Blended-Learning-on-

Students%E2%80%99-Retention-of-Physics-in-Federal-Colleges-of-Education-in-South-East-Nigeria.pdf

David, U. (2019). Comparative Effects of Individualized and Cooperativ Learning Instructional Strategies on Senior Secondary School Students' Academic Achievement in Organic Chemistry. *Electronic Journal of Science Education* .Vol. 22(2). file:///C:/Users/HP%20PRO/Downloads/IndividualizedvsCooperativeLearning%20(2).pdf

Dawal, B. S. (2021). Effects of Individualized Instructional Strategy (IIS) on the Achievement of Students in Basic Science and Technology in a Covid-19 Preventive Classroom Management in Plateau State. In *Sapientia Foundation Journal of Education, Sciences and Gender Studies (SFJESGS)*, Vol. 3(2). https://www.sfjesgs.com/index.php/SFJESGS/article/viewFile/176/171

Egbunu C. O, Agbo-Egwu A. O, & Anyagh, P. I. (2017). Effect of Computer Aided Instructions (CAI) on Senior Secondary School Students' Retention in Mathematics in Makurdi Metropolis of Benue State, Nigeria. *International Journal of Scientific and Research Publications,* Vol. 7(7). http://www.ijsrp.org/research-paper-0717/ijsrp-p67102.pdf

Gabriel, I. A., Osuafor, A. M., Cornelius, N. A., Obinna, P. U., & Francis, E. (2018). Improving Students' Achievement in Chemistry through Cooperative Learning and Individualized Instruction. *Journal of Education, Society and Behavioural Science* 26(2). DOI: 10.9734/JESBS/2018/42873

Iluobe, M. M. & Garba, A. M. (2022). Effects of Individualized Instructional Strategy on NCE Chemistry Students' Acquisition of Process Skills in Qualitative Chemical Analysis. In *International Journal of Innovative Social & Science Education Research* Vol. 10(3). https://seahipaj.org/journals-ci/sept-2022/IJISSER/full/IJISSER-S-9-2022.pdf

King, l. (2016). Individualized Instruction: Definition & Example. https://study.com/academy/lesson/individualized-instruction-definition-example.html

Manuwa, T (2023). East African Scholars Journal of Education, Humanities and Literature Abbreviated. In *Impact of Civic Education on Political*

Participation and Awareness among Nigerian Youths. Vol. 4(8). https://www.easpublisher.com/media/features_articles/EASJEHL_6 8_357-364.pdf

Nnamani, S. C. & Oyibe, O. A. (2016). Effects of Individualized Instructional Method on Secondary School Students' Achievement in Social Studies. *British Journal of Education* Vol. 4(3). https://www.eajournals.org/wp-content/uploads/Effects-of-Individualized-Instructional-Method-on-Secondary-School-Students----Achievement-in-Social-Studies.pdf

Onasanya, S. A. & Eze, C. (2016). Effect of Computer Assisted Instructional Package in Secondary School Students performance in Introductory Technology in Ilorin, Nigeria. *Zaria Journal of Studies in Education (ZJSE). Journal of the department of educational Foundations and Curriculum,* Ahmadu Bello University Zaria, 3(3). ABU Press Ltd.

Saadu, U. T. (2020). Effect of Individualized Instruction on the Academic Performance of Pupils' in Basic Science and Technology. *Journal of the Business of Education (JTBE).* Vol. 3(1). file:///C:/Users/HP%20PRO/Downloads/57-113-1-SM.pdf

Saidu, T. C., Abdulmalik, A. & Judith, K. (2020). Effects of E-Learning on Retention and Performance of Basic Science and Technology Students in Minna, Niger State. Vol. 7(6). *International Journal of Research and Scientific Innovation (IJRSI).* https://www.rsisinternational.org/journals/ijrsi/digital-library/volume-7-issue-11/33-38.pdf

Sedega, B. C, Mishiwo, M., Fletcher, J. A., Kofi, G. A., Awuitor, G., & Awudetsey, J. (2017). Effect of Computer Assisted Instruction (CAI) on Senior High School Students' Achievement at Pie Chart and Histogram in Core Mathematics. *British Journal of Education*. 5(9). https://www.eajournals.org/journals/british-journal-of-education-bje/vol-5-issue-9-august-2017/effect-computer-assisted-instruction-cai-senior-high-school-students-achievement-pie-chart-histogram-core-Mathematics/