Pedagogical use of ICT-Mediated Instruction for Teaching and Learning of History in Secondary Schools

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Abstract
This paper investigated the pedagogical use of information and communication technologies – Mediated Instruction for Teaching and Learning of History in secondary schools, in Lapai Local Government Area of Niger State, Nigeria. Three schools were selected for the study. The research was a true experimental study. Sixty students were purposely selected. The researcher used a CAI package and History performance test as instrument for the study. The pre-test and post-test scores were analyzed using analysis of variance and T-test statistics at 0.05 level of significance. The findings showed that there was no significant difference on the academic performance of students exposed to ICT-Mediated instruction and conventional instruction. It was also found that gender has a significant effect on the performance of students when exposed to ICT-Mediated instruction.

Keywords: Pedagogy, ICT Mediated Instruction, Histrory

Introduction:

As technologies changes every day, its use in every aspect of the society cannot be overemphasized worldwide acceptance of its integration into the teaching and learning process has therefore passed an urgent demand on Learners to develop higher order thinking. In order for the student to meet up with this demand, there is need to Learn at the secondary School level, history which is an indispensable part of the curriculum. It has an important role in the development of higher order thinking skills which can help to achieve the expected out comes, and developing skills (Nieuwoudt, 2006: 150-155) like conceptualizing, abstraction, generalization, problem solving and information processing.

Teachers of secondary schools in Niger state should adapt to the change in the current teaching process and use information and communication technology to enhance the development of higher order thinking through ICT-Mediated instructions.

In August, 2003, the science teachers Association of Nigeria (STAN) annual conference held in Abuja had many stakeholders in attendance. Lecturers from higher institutions, Ministry officials, teachers across various levels of education and students were in attendance. The papers presented reviewed the status of ICT in Nigeria as at 2008, and the provided suggestions and recommendations that could enhance ICT integration into the Nigerian education system. The theme of the conference was "information and communication Technology and science and technology education". It was agreed at the conference that computers should be utilized in teaching other difficult concepts in History and that teachers should be further exposed to the capabilities of computers through short term courses, seminars, workshops, as well as conferences. This paper therefore sought to evaluated the pedagogical use of ICT-Mediated instruction for teaching and learning in secondary schools.

Literature Review:

Resources for History:

According to AJayi (2008:2) there are four important principles for successful history teaching: Let it Make sense, remember the goals, know your tools and live and love history. These principles should be central to the teaching and learning of any history class. Teachers should strive to ensure that the concepts they teach are

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understood by the students. The goals that every history teacher should aim for their Learners are; to survive in the modern world, understand the information surrounding them, prepare for further education and training to teach logical reasoning, and appreciate the beauty of history. To meet this history principles and goals, teachers should know the history tools available to them. History resources and tools can be categorized in two groups: basic tools (the blackboard, chalk and books to write in: the history curriculum and textbooks, software, and an online Library of technology tools, lessons, activities and support materials.

Pedagogical use of ICT:
Pedagogy is referred to as correct use of instructive strategies. It may be implemented in practice as personal and holistic approach of socializing and upbringing of children and young people (Wikipedia, 2012). Besides having adequate pedagogical knowledge, teachers should be knowledgeable about the content of their subject (content knowledge) as well. The pedagogical uses of ICT consist of two components, namely: the application of pedagogy and the use of ICT.

The pedagogical use of ICT refers to the Methods and practices involved in using ICTs for teaching and learning processes (Law *et al,* 2008:5) it is concerned, essentially, with the more effective Learning with the aid of various components of ICTs. Almost all subjects ranging from History (the most structured) to music (the least structured) can be learnt with the help of computers. Olaif (2007) stressed that it should be emphasized that the pedagogic application of ICTs involved effective Learning with the aid of computers and other Information technologies serving the purpose of learning aids, which plays complementary roles in teaching and learning situations, rather than supplements to the teacher/instructor/facilitator. He stressed further that pedagogy through the application of ICT, has the advantage of heightening motivation, helping recall of previous Learning, providing new instructional stimuli activating the Learner's response; providing systematic and steady feedback, facilitating appropriate practice, sequencing Learning appropriately and providing a viable source of information for enhanced Learning.

ICTs are characterized as artificial and symbolical technologies Implemented in schools to facilitate the teaching and learning process.(Basca, 2006: 266), however, merely introducing ICT into teaching and Learning is not sufficient. Teachers should be skilled and knowledgeable in order to appropriately incorporate ICT into their teaching and learning practices (Mishra *et al,* 2006: 1018).

There is therefore the need to having a sound technological pedagogical content knowledge (TPCK) to ensure the effective integration of ICT in schools.

Shulman (2004: 201) in the wisdom of the practice discusses three categories of knowledge that facilitate effective teaching, content knowledge, pedagogical knowledge and pedagogical content knowledge. Content knowledge (CK) refers to the quality and organization of knowledge in the thought processes of teachers. History teachers should have appropriate content knowledge to be able to teach the subject successfully .pedagogical knowledge (Pk) refers to the expertise of teachers in selecting appropriate methods of teaching the content to the learners. Ball *et' al.* (2008: 395) maintain that history teaching starts with showing therefore history concepts must be taught using visual aids so that Learners can see the objects in their natural forms. Pedagogical content Knowledge (PCK) is a combination of subject and pedagogical knowledge or referred to as specialized content knowledge: (PCK) is evident when teachers have the ability to build on learners' prior knowledge and adapt their teaching strategies to best transfer the new content to learners.

Learning with ICT mediated instruction
Learning everything through individual enquiry and exploration takes more than a lifetime to achieve structured and organized discipline of knowledge provides shortcut moreover, scientist and historian never start from the scratch, they build on what other have constructed. Pedagogically, non structured Learning environment based solely on open ended investigation can be confusing to some students who require more structured and organization, for these reasons, there is a place for efficient Leaning for basic knowledge and skills. Also drill and practice may be necessary strategies for retention and recall. Computer aided instruction CAI utilizes three important characteristics of technology speed, memory power and capability to repeat task without reducing performance. This program offers students the opportunities to practice basic skills on their own time and paste ICT's functions as automated tutors presenting a hierarchic level of concept and skills that the student need to master before they are allowed to proceed to the next level. Generally, the material is

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divided into modules of increasing difficulty, students are evaluated at the end of each module receiving immediate feedback, if they respond correctly, and they determine percentage of question they can move to the level. Otherwise the student may repeat the module or enter the remedial module until they have mastered the skill. One of the ICT advantages is to give students control over learning. Who are struggling with a specific topic can practice the lesson as long as they need without the pressure of their more advanced peers. Computer managed instruction (CMI) is another (ICT) program that keeps history of the student's performance, the lesson they have mastered, within how many attempts, where they had more/less difficulty in the topics etc. With these histories the teacher can design an individualized plan to help students attain, their educational goal. Kocher (2005) asserts that the teaching and learning are closely related and each learner has the right to choose his own part instead of been made to fit in the stereotype education system, which demands individual attention, initiates and self-education among Learners.

Objectives of the study

The study examines the effectiveness of information and communication Technologies (ICTs) on teaching and learning in secondary schools.

Specifically the study examined:

1. The difference in the performance of students taught with ICT-mediated instruction and those taught with the conventional instruction,
2. The influence of gender on the student's academic performance when they are exposed to ICT mediated instructions.

Research questions

1. Will there be any significant differences in the academic performance of student when exposed to ICT-mediated instruction and conventional instruction?
2. Will there be significant difference in the academic performance of male and female students when exposed to ICT-mediated instruction?

Research hypotheses

1. There will be no significant difference in the academic performance of students when exposed to ICT- mediated instructions and the conventional method.
2. There will be no significant difference in the academic performance of male and female students when exposed to ICT-mediated instruction.

Research Design

This research design was an experimental design, randomized was of two groups, there was a pre-test and a post-test of Senior secondary school students (SS1) and the condition for selecting this students was that none of the students would have been taught the topic before it is used. The design consists of an experimental group exposed to ICT-mediated instruction and conventional instruction while the control group will not be exposed to any treatment. Post-test was conducted one week after the Pre-test.

Population of the study

The targeted population for this study was senior secondary school students (SS1) of

1. Government Day Secondary School Evuti
2. Government Day Secondary school Gulu
3. Government Day Secondary School Ebbo

This is because the schools are equipped with ICT gadgets and they also have conducive Learning environment.

Sampling and sampling procedures

The nature of this study requires purposive selection of the research sample, since the study was conducted in schools with ICT gadgets and where students are computer literates, for easy understanding of the course and its operation (SS1) students will be used, 20 students from each school making a total of 60 in all.

Research instruments

The instruments for this research are projector, a CAI package which was bought because of time constraint,

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could not be developed by researcher, computer system and other test instruments such as lesson notes, chalk, biros etc. the package was an interesting one. A topic in history was taught (slave-trade) and it was divided into three (3) sub-topics (who is a slave, effect of slave trade in West Africa, Impact of slave trade in Nigeria) with relevant information necessary to understand it. The same topic was also prepared by the researcher in form of lesson note and the lesson lasted for about 40 minutes.

As the package was opened the topic appeared and video was played for better understanding .ICT-mediated instruction was for Government Day Secondary school Evuti; and conventional instruction was applied to Government Day Secondary school Gulu where the teacher teaches the students had the opportunity of asking questions in areas not clear to them while Government Day Secondary School Ebbo was used as the control group where the students were neither taught with ICT-mediated instruction.

Validity and Reliability of the instruments.
The face and content validity of the test was established by giving it to my colleague in the department of computer science, history Lecturers of Ibrahim Badamasi University Lapai and also the CAI package and conventional instruction was also validated by them. The reliability co-efficient for the instruction was 0.84 (i.e r=0.84) which is suitable and reliable for the study.

Administration of Instrument
The three groups were assembled in their schools and 25 objective questions was administered on them by the teacher as a pre-test on completion of the test, the scripts were collected and mixed together to prevented bias during marking. Later the treatment was applied to the teaching and learning process after a week to post-test was conducted.

Method of Data Analysis
The result from the administered-test was computed using the ANOVA and the T-Test analysis for the two hypotheses.

A total of 25 test question was administered to 60 students from the three selected schools in Lapai Local Government Area of Niger State.
Hypothesis One: there will be no significant difference in the academic performance of student when taught through the ICT-mediated instruction and the conventional instruction.

Table 1a: Mean performance of Students in the Pre-tests.

GROUP	Number of students	Mean	Standard deviation
ICT-mediated Instruction	20	4.30	1.418
Conventional Instruction	20	1.95	0.999
Control Group	20	1.85	1.268
Total	60	2.70	1.670

The above table reveals the mean performance of the teaching methods (ICT-mediated instruction, conventional Instruction and control group) the mean performance in the pre-test was 4.30, 1.95 and 1.85 respectively.

The result of pre-test showed that their performance is within the same range.
Table 1b: Mean Performance of Students in the Post-test.

Groups	Number of students	Mean	Standard Deviation
ICT-mediated Instruction	20	5.45	0.686
Conventional Instruction j	20	4.90	2.049
Control Group	20	5.15	1.496
Total	60	5.17	1.509

An examination of table 1b reveals that there are three teaching Methods (ICT-mediated instruction, Conventional instruction and Control Group) the mean performances of the students in the post-test were

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5.45, 4.90 and 5.15 respectively. This showed that there was an improvement in the performance of students after the post-test. This may be due to the effect of the treatment on the students which influenced the performance. The experimental group performed better than the other groups. IT is also noted that the control group performed better than the conventional group in the post-test and this may be due to high level of commitment and seriousness on the path of the students in the control group.

Table 1c: Summary of ANOVA: post-test comparison of mean.

	Sum of square	ΔF	Mean Square	F	Significance
Between group	3.033	2	1.517	0.658	0.522
Within group	131.300	57	2.304		
Total	134.333	59			

To determine if there was any significant difference among the Mean performance of students, ANOVA was carried out. An examination of table 1c reveals F(2,57) =0.658,a= 0.522 was not significant. This means that there is no significant difference among the means of the three teaching Methods. The null hypothesis is therefore not rejected.

Hypothesis two: there is no significant difference in the performance of Male and Female students when exposed to ICT-Mediated Instruction.

Table 2a: T-test Analysis of male and female students exposed to ICT-mediated instruction.

Gender	N	Mean	Standard deviation	Standard error
ICT-mediated instruction. Male	10	5.10	0.568	0.180
ICT-mediated instruction. Female	10	5.80	0.632	0.200

Independent Sample Test

ICT group	F	Significance	T	ΔF	Significance 2 - tailed	Mean diff
Equal variance assumed	0.447	0.512	-2.605	18	0.008	-0.700
Equal variance not assumed			-2.605	17.79	0.008	-0.700

The above table shows the results of the t-test analysis of male and female students exposed to ICT-mediated instruction. The result showed that there is significant difference in the academic performance of male and female students in the experimental group with the mean score of 5.10 ($t = 2.605 : P<0.05$) and 5.80 ($t =2.65 : P < 0.05$) respectively in history. It showed that the female students performed better than the male students. The reason may be that the female students in the class are more brilliant than the male students.
To this effect the null hypothesis of no significant difference is therefore rejected.

Discussion of Finding

One of the major finding in this study shows that there is no significant difference in the academic performance of students when exposed to ICT-mediated instruction and conventional instruction. This is almost in agreement to the finding of blether and co (1999) in a survey carried out among students that only few students felt confident and competent to implement ICT usage in schools while others were deficient in other areas.

Another major finding in this study shows that there is significant difference in the academic performance of male and female students when exposed to ICT mediated instruction in history. Hence, gender has effect on student performance in history when expose to ICT mediated instruction. The reason may be that the female students have high intelligence quotient than the males in class and therefore with the aid of the treatment they had the opportunity of improving their academic performance.

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Recommendation

Based on the findings the following recommendations were made:

1. The federal ministry of education should create ICT facilities in every school, from primary level of education to tertiary level of education to enhance mastery of learning through ICT-mediated instruction, for this will in a great way improve academic performance at all levels.
2. The government should also improve the training of principals, teachers and computer personnel in the use of computers and other ICT equipments through seminar, workshops and in-service training. This will erase the occurrence of students not understanding what is taught through ICT-mediated instruction
3. The government should provide furnished classrooms in all schools for keeping and maintaining of the ICT equipment and material.
4. Special ICT personnel who are professionals in the field should be assigned to all schools for accurate supervision on how the technology is been used and managed.

Summary

This study investigated the pedagogical use of information and communication technologies mediated instruction for teaching and learning of history in secondary schools, in Lapai Local Government Area of Niger State. Three schools were selected for the study.

The finding shows that there is no significant difference in the academic performance of students when exposed to ICT-mediated instruction and conventional instruction. Also that gender has effect on the academic performance of students.

Conclusion

It is now Left for the teachers to decide on learning strategies that would be beneficial and more productive to the teaching and learning system. Such as developing conceptual understanding and experiencing what science is all about. The finding showed that there is no significant difference in the academic performance of student exposed to ICT-mediated instructions and conventional instruction and this is due to the aforementioned lapses. If the above recommendations are implemented, ICT-mediated instructions will be a relief to our teachers and equally motivated the students. It is true because the issues such as good course organization, effective class management, content created, Self assessment and self study will be facilitated

However, in order to achieve a maximum impact and influence of ICT-mediated instruction on teaching and learning, the culture and society to which our teachers and students belong must be adjusted to meet the challenges of the new teaching methods.

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