

## INFLUENCE OF COMPUTER ASSISTED INSTRUCTION ON PRIMARY EDUCATION IN NIGERIA

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**Abstract:** This study examined the influence of Computer Assisted Instruction on Primary education in Nigeria. It was delimited to Apapa Local Government Area (LGA) of Lagos State. Three research questions guided the study. The descriptive survey design was utilized for the study. The population consisted of all Primary schools' teachers in Apapa LGA of Lagos state. Simple random sampling technique was used to select ten Primary schools, while purposive sampling method was employed in choosing 15 Primary schools' teachers in each of the sampled school in Apapa LGA of Lagos state. The instrument used to obtain information was the Questionnaire titled: Computer Assisted Instruction Inventory (CAII). The data collected were collated, coded and analyzed, using descriptive statistics and mean rating because of their appropriateness to the study. The investigation reveals that: The influence Computer Assisted Instruction on learning in Primary schools and the level of the awareness was indeed low. There were enormous challenges facing the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa LGA of Lagos State. Base on the conclusion reached, the following recommendations were drawn: Governments and school authorities should make effort to provide Computer in schools and ensure of effective usage in teaching and learning. Teachers' should be made to be aware of the importance of Computer Assisted Instruction on learning in Primary schools. Government should provide Computer Assisted Instruction services in Primary schools and that government should provide solutions to the challenges of Computer Assisted Instruction services in schools.

**Keywords:** *Computer Assisted Instruction; Primary education; Primary schools' teachers.*

### INTRODUCTION

Globally, education is fast embracing digital learning in the curriculum. Digital learning is a shift from the traditional approach of teacher-directed didactic to modern methods where computer technology plays a momentous role, thereby improving the quality, efficiency and effectiveness of teaching, learning, research and educational management. Digital learning is basically the use of information and communication technologies (ICTs) to enhance and support learning teaching and research (Eteng & Ntui, 2009). Its methods including the integration of the World Wide Web, multimedia, information search, electronic libraries, and remote learning.

In this digital age, teachers must deal with the challenge and developmental opportunities of how to appropriately use information technology and how to integrate various educational materials into course design and teaching methods (Rosenberg, 2001). Electronic learning popularly referred to as e-learning is increasingly becoming acceptable in

institutions all over the world and more students taking part in it (OECD, 2009). Amede (2016) counseled that information technology can contribute immensely to quality education for youth development and economic transformation:

The world is advancing at a rapid rate. Events have moved to the electronic stage with the computer at the centre. This development has brought a lot of innovation and revolution into teaching and learning. The 3R's (reading, writing and arithmetic) which forms the nucleus of the old system of education has witnessed series of literacy reforms. The world is now in the age of information technology or computers age; hence, there is a need to keep abreast with time. One of the ways of achieving this is through the introduction of computer education in our institutions of learning (Ajibade, 2006).

In recent years, due to advancement of computer technology, the concept of Computer Assisted Instruction is now more prevalent, and has become a trend (Yang & Wang, 2001). Computer-assisted

instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. CAI refers to the use of the computer as a tool to facilitate and improve instruction. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding. CAI uses a combination of text, graphics, sound and video in enhancing the learning process. The computer has many purposes in the classroom, and it can be utilized to help a student in all areas of the curriculum.

The characteristics of CAI provide stimulation from different channels such as words, pictures, sounds, animation, and images, and can frequently help students use learning functions of different sensory organs to achieve the learning objectives. In designing digital learning, scholars emphasize that learning ideals rather than computer technology should lead the design of a computerized learning environment (Yang & Wang, 2001). The need for digital learning has now become important more than ever before as the objective of education in Nigeria as defined in the National Policy on education (2004) includes the provision of high level manpower for national development and this is to be achieved through its programme of teaching, learning and research. Digital learning can help children in developing their literacy and innumeracy skills, while also building Information Communication and Technology skills for life and work (CILIP, 2005).

CAI brings with it several potential benefits as a teaching/learning medium. With self-paced learning, learners can move as slowly or as quickly as they like through a programme. If they want to repeat some task or review some material again, they can do so as many times as they choose. The program will not tire or complain about repetitions. Learners can skip over a topic if information is already known, making the learning process more efficient. With self-directed learning, learners can decide what they want to learn and in what order.

In spite of the bright prospect of digital learning in the country, it is so worrisome that there are some hurdles militating against the effective use of the educational technology in Nigeria. With self-access programmes, learners can be left on their own and may feel overwhelmed by the information and resources available. On the other hand, there

may be too much direction from the computer if classroom methods are transferred to the computer. Folorunso, Ogunseye & Sharma (2006) and Resnick (2002) indicates that mass unawareness, low computer literacy level and cost were identified as critical factors affecting the acceptability of digital learning by students and teachers in Nigerian. According to Schulmeister (2006), experience proved that the benefits of digital learning could not be fully taken advantage of, expectations could not be met and that technology often was used to simply reinforce outmoded approaches to learning. Resnick (2002) criticizes that even though Information Communication Technology is applied in education, the approaches to teaching and learning remain largely unchanged.

Various barriers to Computer Assisted Instruction in Nigeria schools have been identified to include: poor infrastructure, epileptic power supply, lack of electricity, lack of trained personnel, poverty, inadequate funding and limited or no internet access (Aladejana, 2007; Jegede, 2005). There is non-availability of internet access in some institutions because of the recurrent cost of bandwidth. Inequality of access to technology is the challenge of digital divide existing among the student in Nigeria institutions (Omofaye, 2007). Thus, some of them are unable to afford computers due to the relative cost to the average income of workers in the country (Ajadi, Salawu, & Adeoye, 2008). The cost of accessing the internet in Nigeria is still on the high side, some students find it a challenge to afford (Arikpo, Osofisan, & Usoro, 2009).

Humans are multi-sensory creatures. The more senses through which we receive information, the easier it is to remember. According to Fletcher (1990), people remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do. The fact that the computer can exercise various senses and present information in a variety of media can enhance the learning process.

There are evidences supporting the introduction and use of new technologies in instruction. The World Bank (2004) opined that ICTs should be considered within education for the purpose of reforming curriculum, reinforcing teaching/learning and to improve leaning. The UN Secretary of State (2005) speaking on the role of technology in education said we must ensure that Information and

Communication Technologies (ICTs) are used to help unlock the doors of education. As a result, Millennium Development Goals (MDG's) came up with this policy "to co-operate with the private sector, to make available the benefits of new technologies, especially ICTs to increase educational opportunities and unlock the door of education. As a result of this, new technologies are being disseminated into educational institutions at a rapid rate. For the new technologies to be effectively utilized, teachers at all levels need not only to be proficient in the technologies but must also be well versed in its effective integration into their instruction. The major area Nigeria could meet this expectation is the teacher's preparation in the new technologies.

Computers have been provided in many institutions in Nigeria by government, school proprietors and philanthropists with the sole objective inculcating technological skills on students. No doubt, such gestures are indeed noble and genuine. However, to maximize computer skills and efficiently utilize them to the development of individuals and the society, it is important to commence such adventure at an early age. This necessitated this study to determine the influence of Computer Assisted Instruction on Primary education in Nigeria.

Computer Assisted Instruction is a giant attempt at integrating digital learning into instruction in school to enhance effective learning in schools, especially at the on Primary education level. Nigeria is not yet fascinated by the potential of technology to enhance teaching and learning. Many of our schools are lagging behind in integrating technology into instruction. Most Parents cannot afford to provide computers for their wards, school proprietor manage schools without computers and internet facilities, and governments leave school library ill-equipped. Lack of digital technology limit students from attaining their full academic potentials thereby denying the nation of much needed human capital.

No doubt, Computer Assisted Instruction has numerous advantages individuals and the society. It provides stimulation from different channels such as words, pictures, sounds, animation, and images, can frequently help students use learning functions of different sensory organs, and achieve the learning targets. Teaching pupils without the use of Computer mediation is tantamount to graduation

half backed students that will be incompatible with requisite skills to fit into the much overwhelmed digital world of work. This study therefore focused on the influence of Computer Assisted Instruction on Primary education in Nigeria

The study explored the influence of Computer Assisted Instruction on Primary education in Apapa Local Government Area of Lagos State. Specific objectives include to: (1) Evaluate the extent to which Computer Assisted Instruction would influence learning in Primary schools in Apapa Local Government Area of Lagos State. (2) Ascertain the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State. (3) Determine the challenges faced in the utilization of Computer Assisted Instruction in Primary schools in Apapa Local Government Area of Lagos State.

The following research questions are: (1) To what extent does Computer Assisted Instruction influence learning in Primary schools in Apapa Local Government Area of Lagos State? (2) What is the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State? (3) What are the likely challenges in the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State?

## **METHOD**

This study adopted a descriptive survey research design because data was collected from participants in the area of study. The rationale for using this method was that, it seemed to be most efficient method to gather data directly from the school for this research and also due to the fast pace of the research project, convenience and quick return of data. The population consisted of all primary school teachers in Apapa Local government area of Lagos state. Simple random sampling technique was used to select ten Primary schools while purposive sampling method was employed in choosing 15 Primary schools' teachers in each of the sampled school in Apapa LGA of Lagos state. The instrument used to obtain information was the Questionnaire titled: Computer Assisted Instruction Inventory (CAII). The questions designed by the researcher were basically of closed end questionnaire which gives the respondents sets of

alternatives whereby the respondents were allowed to choose the answer that is most appropriate to them. The instrument was divided into 4 sections: A, B, C and D. Section A is the biographic information, B contains items on Computer Assisted Instruction, C deals with variables on awareness of Computer Assisted Instruction while section D constitutes aspects of the questions on challenges facing Computer Assisted Instruction. The questionnaire was a 4 Likert style questionnaire; strongly agree, agree, disagree and strongly disagree. The score for the questionnaire followed this pattern: strongly agree - 4points, agree - 3points, disagree - 2 points and strongly disagree - 1 point.

The validity of the instrument was determined by presenting the questionnaire to an expert in research so as to test its validity and make corrections were necessary. The reliability of the instrument was determined by administering it on a sample of 30 students in Agege local government area of Lagos state which was not part of the original sample population. The data from the tests were analyzed with the Cronbach alpha statistics. The coefficient of reliability was estimated at 0.81 which was suitable for the studies.

The instrument was distributed and administered by the researcher. The purpose and intent of the research was well explained and copies duly distributed. All respondents were given adequate time to fill in the questionnaire and were at no time under any form of duress. The researcher was very patient in waiting for respondents to supply valuable responses and also to ensure a high rate of returns of which a rare 100% was achieved. The collected data, during analysis, was expressed in tabular forms. Besides, basic frequency tables, descriptive statistics and mean rating were utilized in data analysis, as this would be of help in clarifying results and making comparisons. The data was processed and analyzed using Microsoft excel and the SPSS statistical analysis software. The weighted mean of 2.5 was used to evaluate the statistics.

## **RESULTS AND DISCUSSION**

### *Results*

*Research question 1: To what extent would Computer Assisted Instruction influence learning in primary schools in Apapa Local Government Area of Lagos State?*

Table 1. *Descriptive statistics on the extent to which Computer Assisted Instruction would influence learning in Primary schools in Apapa Local Government Area of Lagos State*

S/N	Items	N	Sum	Mean	Std. Deviation
1	Computer-assisted instruction is used by teachers to present the instructional materials.	150	160.5	1.07	.91
2	Computer-assisted instruction helps teachers to monitor the learning outcomes.	150	156	1.04	.19
3	Computer-assisted instruction is a tool that aid assessment	150	170	1.08	.33
4	Computer-assisted instruction helps teachers to improve the efficiency and effectiveness of teaching and learning.	150	154.5	1.03	.70
5	Computer-assisted instruction assists teachers to improve the quality of research	150	249	1.66	.87
6	Computer-assisted instruction frequently help students use learning functions of different sensory organs to achieve the learning objectives	150	163.5	1.09	.66
7	Computer Assisted Instruction provides stimulation from different channels such as words, pictures, sounds, animation, and images to achieve learning targets	150	168	1.12	.45
8	Computer-assisted instruction enables teachers to device effective teaching methods	150	151.5	1.01	.53
9	Computer-assisted instruction helps teachers to improve the quality of effective teaching methods	150	288	1.92	.25
10	Computer-assisted instruction enables teachers to provide course design	150	153	1.02	.84
	Total	1500	1814	1.20	.57

The result in Table 1 above shows descriptive Statistics on the extent to which Computer Assisted Instruction would influence learning in Primary schools in Apapa Local Government Area of Lagos State. The analysis revealed the total sum of participants to be 1814 with a mean score of 1.20 while the standard deviation is .57. Going by the norm of the scale (CAII), the table means score of 1.20 falls below the weighted mean score of 2.5. It

could be concluded that the extent to which Computer Assisted Instruction influenced learning in Primary schools in Apapa Local Government Area of Lagos State is indeed low.

*Research question: 2 What is the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State?*

Table 2. Mean rating on the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State

S/N	Rating Items	N	Sum	Mean	Std. Deviation
1	I seldom use Computer Assisted Instruction in teaching and learning.	150	250.05	1.67	.92
2	I am not acquainted with Computer Assisted Instruction.	150	246.00	1.64	1.11
3	Computer Assisted Instruction is strange to me.	150	282.00	1.88	1.04
4	I am not aware of Computer Assisted Instruction.	150	214.05	1.43	.92
5	I have not heard of Computer Assisted Instruction.	150	247.00	1.65	.78
6	Computer Assisted Instruction is a new concept to me.	150	208.05	1.39	.76
7	Computer Assisted Instruction is not part of our school curriculum.	150	244.05	1.63	.84
8	Computer Assisted Instruction is a foreign concept.	150	211.05	1.41	.92
9	I cannot defend Computer Assisted Instruction.	150	228.00	1.52	.925
10	I am not knowledgeable about Computer Assisted Instruction.	150	220.05	1.47	1.11
	Total	1500	2350.3	1.57	.93

Table 2 revealed the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State. Computer Assisted Instruction is a new concept to me has the lowest value of 1.39, followed by Computer Assisted Instruction is a foreign concept (1.41) and I am not aware of Computer Assisted Instruction (1.41) while the tops item on the list is Computer Assisted Instruction is strange to me (1.88), followed by I seldom use Computer Assisted Instruction in teaching and

learning (1.67). The table means score of 1.57 is lower than the weighted mean of 2.5. The implication is that the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State is very low.

*Research question 3: What are the challenges faced in the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State*

Table 3. Descriptive statistics on the challenges faced in the utilization of Computer Assisted Instruction in Primary schools in Apapa Local Government Area of Lagos State

S/N	Rating items	N	Sum	Mean	Std. Deviation
1	Cultural considerations	150	84.00	2.90	.92
2	Learners attitude	150	107.00	3.56	.57
3	Learners environment	150	115.00	3.81	.380
4	Inadequate information	150	112.00	3.83	.50
5	Internet accessibility	150	114.00	3.80	.41
6	Poor funding/poverty	150	109.00	3.67	.49
7	Computer anxiety	150	114.00	3.82	.41
8	Software challenges	150	112.00	3.79	.50
9	Poor infrastructure	150	117.00	3.94	.305
10	Learners background	150	105.00	3.56	.94

knowledge/computer literacy				
Total	150	1122.00	37.40	2.39

Table 3 above portrays the challenges faced in the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State, as indicated by the high mean scores of 37.40, which were above the scale average of 20. Infected, the higher mean score of the challenges was poor infrastructure (3.94), inadequate information (3.83), followed by computer anxiety (3.82) and learners' environment (3.81) while the least mean score was item 1 (2.90) which is cultural considerations. The implication is that there are enormous challenges facing the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State.

### *Discussion*

This study is focused on the influence of Computer Assisted Instruction on Primary education in Apapa Local Government Area of Lagos State. Research Question 1 sought to determine the extent which Computer Assisted Instruction influence learning in Primary schools in Apapa Local Government Area of Lagos State? The outcome of the study revealed that Computer Assisted Instruction would influence on learning in Primary schools in Apapa Local Government Area of Lagos State was indeed low. This finding agreed with the viewpoints of Schulmeister (2006). According to him, experience proved that the benefits of digital learning could not be fully taken advantage of, expectations could not be met and that technology often was used to simply reinforce outmoded approaches to learning. Resnick (2002) criticizes that even though Information Communication Technology is applied in education, the approaches to teaching and learning remain largely unchanged.

Research Question 2 was: What is the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State? The findings revealed that the level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State was very low. This outcome agreed with Folorunso, Ogunseye, & Sharma (2006) and Resnick (2002) who indicated that mass unawareness, low computer literacy level and cost were identified as critical factors affecting the acceptability of digital

learning by students and lecturers of Nigerian universities.

The outcome of Research Question 3 indicated that there are enormous challenges facing the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State. This outcome agreed with Aladejana, 2007; Jegede (2005) who asserted that barriers to Computer Assisted Instruction in Nigeria schools have been identified to include: poor infrastructure, epileptic power supply, lack of electricity, lack of trained personnel, poverty, inadequate funding and limited or no internet access There is non-availability of internet access in some institutions because of the recurrent cost of bandwidth. Inequality of access to technology is the challenge of digital divide existing among the student in Nigeria institutions (Omofaye, 2007). Thus, some of them are unable to afford computers due to the relative cost to the average income of workers in the country (Ajadi, Salawu, & Adeoye, 2008). The cost of accessing the internet in Nigeria is still on the high side, some students find it a challenge to afford (Arikpo, Osofisan, & Usoro, 2009).

Counsellors should use their lofty positions in the school system to encourage and motivate teachers to undergo professional development in Computer skills. They should regularly ensure the induction of new teachers through orientation and organize seminars, conference and workshops for old ones. These programmes when effectively and judiciously implemented would help to build teachers capacity in Computer Assisted Instruction.

### **CONCLUSION**

The study explored the influence of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State. The outcome of the study revealed that the extent to which Computer Assisted Instruction influenced learning in Primary schools in Apapa Local Government Area of Lagos State is indeed low. The level of awareness of Computer Assisted Instruction on learning in Primary schools in Apapa Local Government Area of Lagos State is very low and that there are enormous challenges facing the utilization of Computer Assisted Instruction on learning in Primary schools in Apapa Local

Government Area of Lagos State. However, Governments and school authorities should make effort to provide Computer in schools and ensure of effective usage in teaching and learning.

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