



**AN ASSESSMENT OF THE IMPLEMENTATION
OF COMPUTER SCIENCE EDUCATION IN
COLLEGES OF EDUCATION IN KANO AND
JIGAWA STATES, NIGERIA**

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Abstract

The purpose of this study is to investigate the extent of the implementation of computer science education in Kano and Jigawa States Colleges of Education. Descriptive research design is used. The population comprises the academic staff and students of computer science departments who are one thousand five hundred and sixty eight (1568). A sample of three hundred and six (306) was purposively selected. A self-developed questionnaire was used as the instrument of data collection. Frequency counts and chi-square statistical tools were used in analyzing the data. The first hypothesis was retained while the second was rejected. The findings indicate that there was inadequate provision of the facilities and manpower needed for the effective implementation of computer science education in the colleges. The researcher recommended that the stakeholders of education in collaboration with other agencies and nongovernmental organizations should

come to the aid of computer education by providing adequate facilities and equipment. Kano and Jigawa State Government should consider the possibilities of establishing the educational trust fund similar to that of the Tertiary Education Trust Fund (TETFUND) at the state level to support computer education in the colleges of education.

Keywords: Implementation, Computer Science Education, Colleges of Education, Kano, Jigawa, Nigeria.

Introduction

Education is an instrument per excellence for effective national development (FME 2004). According to Ayo (2011), it is the process through which individuals are made functional members of the society through transmission of knowledge, skills and attitudes. Thus, education promotes better health and increases skills and higher productivity, providing the chances to live in dignity and make wise and rationale decisions about one's life. Computer education is of paramount importance to any nation's development. It is on this premise that the federal government of Nigeria sought to introduce computer studies in the education system from primary to higher institutions. In line with this, the National Policy of Education (NPE, 2004) has clearly explained that Nigeria cannot afford to ignore the role which computer literacy plays in achieving the national goals of technological development, considering the fact that educational systems around the world face

formidable challenges that tax conventional strategies. Fresh approaches are needed to address the persistent problems of the past and provide students with education relevant to the needs of the modern information based global economy.

Based on the importance of the computer to teaching and learning, it is obvious that introducing the system can be said to be in the right direction. Fajola (2001) asserts that the computer is diligent and consistent in its mode of operation to perform multi-functional roles in the teaching and learning process at all levels of education. It is an electronic device which can hold vast quantities of information and accurately store information for use. It is capable of carrying and processing input calculation according to a predetermined set of instructions. The computer is felt in establishments like banks, the power holding company, the independent national electoral commission, payroll processing, examination conduction, diagnosing sickness in hospitals, engineering and management in general (Mbam, 2000). There is no doubt that computer education produces and promotes competency and efficiency in the teaching/learning process. But the magnitudes at which the computer education facilitates the quality of teaching attracts little concern from academics and policy makers in this part of the country. Thus, this study is aimed at finding out the extent at which the computer education curriculum is properly implemented in colleges of education in Kano and Jigawa States for the production of effective computer education teachers, especially at

the lower levels of our education (pre-primary, primary and secondary levels).

Objectives of the Study

This study is carried out to achieve the following objectives:

1. Examine the extent to which laboratory facilities and equipment are adequately provided for the implementation of Computer Science Education (CSE) in Colleges of Education in Kano and Jigawa states.
2. Determine the adequacy of the provision of manpower for the implementation of Computer Science Education (CSE) in Colleges of Education in Kano and Jigawa State.

Research Questions

In line of the research objectives, the following research questions are addressed:

1. To what extent are laboratory facilities and equipment adequately provided for the implementation of Computer Science Education (CSE) in Colleges of Education in Kano and Jigawa States?
2. What is the extent of the provision of adequate manpower for the implementation of Computer

Science Education (CSE) in Colleges of Education in Kano and Jigawa states?

Research Hypotheses

The study tested the following null hypotheses at 0.05 alpha:

1. There is no significant difference between teachers' and students' opinions on the adequacy of laboratory facilities and equipment for the implementation of Computer Science Education (CSE) at Colleges of Education in Kano and Jigawa states;
2. There is no significant difference between teachers and students opinion on the provision of adequate manpower for the implementation of Computer Science Education (CSE) at Colleges of Education in Kano and Jigawa states.

A number of researches was conducted on the implementation of curriculum both in Nigeria and other countries of the world. The essence behind all this research is to examine the state of curriculum implementation in an institution of learning. Solomon (2014) in a study among 500 teachers randomly selected from 50 secondary schools in the state reveals that, although majority of the principals, teachers, parents and stakeholders have positive attitude towards computer education, the major problems hindering its effective implementation are inadequate computer accessories, an insufficient number of teachers and the nonwillingness of some qualified teachers to teach computer studies.

In an earlier study among the staff of science and technical colleges in Kano state, Farouk (2005) finds that there is no standard curriculum for teaching computer education in the colleges and the only so-called curriculum used had put much emphasis on the cognitive domain. A study conducted by Owolabi and Jegede, (2003) in Nigerian Secondary Schools on the gaps between Policy and Practice reveals that wide gaps existed between policy and practice in teaching computer education in the federal unity secondary schools in Nigeria due to the following reasons: the teaching of computer education in the federal government school is limited to JSS levels only. However, very few private schools offered it at these levels.

Adefunke, Ayodele and Olufemi (2014) assessed the implementation of a national computer education curriculum in Nigeria primary schools. The result revealed that there was no significant difference in the computer competence of male and female teachers in Nigeria primary schools. However, there was a significant difference in the availability of computer hardware and software in public and private schools. In another development, Aboderin and Solomon (2014) conducted a research on the implementation of computer education in secondary schools in Ondo State South West, Nigeria. The study revealed that computer resources were lacking in the schools. Moreover, there are inadequate funds, trained manpower and time for computer lessons on the time table.

Methodology

Descriptive survey design was used in this study. The findings of a descriptive survey research design generalize to the population based on study of the sample (Bichi, 2004). The population for this study comprises all the academic staff and NCE students of Computer Science Education (CSE) departments in Kano and Jigawa states Colleges of Education. There are one thousand five hundred and ten (1,510) students and fifty-eight (58) teachers.

The sample size for this study is 306, comprising students and teachers. This is based on the recommendation of Krejcie and Morgan (1970), which states that for a population of 1568, a sample of 306 is recommended. The sample was drawn using stratified random sampling procedures. The Table below shows the sample.

Table 1: Population and sample of the study by College and Gender

Colleges	Population		Students		Teachers		Ttal
	S	T	M	F	M	F	
SRCoE Kano	840	31	93	50	15	05	163
JSCOE, Gumel	670	27	80	42	16	05	143
Total	1510	58	173	92	31	10	306

The instruments used for data collection is a researcher designed questionnaire. It is called the implementation of computer science questionnaire (ICSEQ). The questionnaire is divided in to two sections. Section A's the respondents' personal information and section B contains items related to the topic of the study. The

questionnaire used for this study is the close ended modified Likert type and the respondents are required to react to each item on a four point scale, ranging from Strongly Agree (SA) 4, Agree (A) 3, Disagree (D) 2 and Strongly Disagree (SD) 1, respectively. The questionnaire items were 34 designed in section B to answer individual objectives. In order to ascertain the validity and reliability of the instrument for this study, a pilot was conducted and the co-efficient of 0.799 obtained, using Cronbach's alpha formula for determining reliability co-efficient.

The researcher personally distributed the questionnaire to the teachers and students of Kano and Jigawa states colleges of education. He was assisted by a research assistant, 265 questionnaires were retrieved from the students and 41 from the teachers at the end of the exercise. The study's research questions were answered using frequency counts and simple percentages, while chi square was used in testing the research hypotheses. All the hypotheses were tested at the 0.005 level of significance.

Results

Research Question One: To what extent are laboratory facilities and equipment adequately provided for the implementation of Computer Science Education (CSE) in Colleges of Education in Kano and Jigawa States?

Subjects responded by ticking agree or disagree while frequency counts and percentage were used in analyzing the data.

Table 2: Respondents Frequency on the Adequacy of Laboratory Facilities and Equipment for the Implementation of the CSE

Respondents	Agreed	%	Disagreed	%
Teacher	4	9.78	37	90.25
Students	33	14.23	232	87.47

Table 2 above shows that 90.25% and 87.47% of the teachers and students believe that laboratory facilities and equipment for the implementation of the CSE in the study are inadequate.

Research Question Two: What is the extent of the Provision of Adequate Manpower for the Implementation of Computer Science Education (CSE) in Colleges of Education in Kano and Jigawa States?

Table 3: Respondents frequencies on the provision of adequate manpower for the Implementation of CSE at College of Education in Kano and Jigawa States

Respondents	Agree	%	Disagree	%
Teacher	5	12.20	36	87.80
Students	216	81.51	49	18.49

Table 3 shows a discrepancy in the teachers and student's opinion; while 87.9% of the teachers believe that there is the inadequate provision of manpower to implement CSE, 81.51% the students hold the opinion that there is.

Hypothesis 1: There is no significant difference between teachers' and students' opinions on the adequacy of

laboratory facilities and equipment for implementation of CSE in colleges of education in Kano and Jigawa states.

Table 4: Chi-square Result on the Teachers and Student opinion on the Adequacy of Laboratory Facilities and Equipment for the Implementation of CSE.

N	X ² - Cal.	X ² - Crit.	p-value	Decision
306	0.002	3.841	0.968	Retained H ₀

Significance level at 0.05

Table 4 shows that x^2_{cal} is 0.002, which is less than x^2_{crit} 3.841 (cal 0.002 < crit. 3.841), indicating no differences between the teachers' and student's view on the inadequacy of the laboratory facilities and equipment of the CSE. It means that the H₀ status that there is no significant difference between the teachers and students opinion on the adequacy of laboratory facilities and equipment is retained.

Hypothesis 2: There is no significant difference between teachers' students' opinion on the provision of adequacy manpower for the implementation of CSE at College of Education in Kano and Jigawa states.

The above hypothesis was tested using chi-square statistics at the 0.05 level of significance. It can be seen from the Table below.

Table 5: Chi-square Result on the Teachers and Students opinion on the Provision of Adequate Manpower for the Implementation of CSE at College of Education in Kano and Jigawa States.

N	X² - Cal.	X² - Crit.	p-value	Decision
306	85.03	3.841	0.00	Rejected H ₀

Significance level at 0.05

The Table 5 decision was to reject H₀ as the calculate chi-square value is greater than the critical value ($x^2_{cal} 85.03 > crit. 3.841$), indicating a significant differences between teachers' and students' opinion on the provision of adequate manpower for the implementation of CSE at colleges of education, Kano and Jigawa states.

Discussion of the findings

The focal point for this research work was the assessment of the implementation of computer science education in colleges of education in Kano and Jigawa States. The study collected data on four major aspects of curriculum implementation viz: the provision of adequate facilities and equipment, adequate funds and adequate manpower as well as the employment of appropriate teaching methodologies.

From the data presented in Tables 1 and 2, both the students and teachers agreed and believed that the necessary facilities and equipment needed to appropriately implement the CSE curriculum are not adequately provided, as 90.25% and 87.47% the teachers and students respectively believe that the laboratory

facilities and equipment for the implementation of the CSE curriculum in the study are inadequate. This finding is similar to the findings of Solomon (2014) and Chukwuka (2013). The present research finding has shown clearly that despite the intervention of agencies, such as the Tertiary Education Trust Fund (Tetfund) in many areas of tertiary education, the provision of adequate facilities and equipment to implement the computer science education in Colleges of Education in Kano and Jigawa states is still inadequate.

Reading between the lines, one can understand the divergent views between the teachers and students on the adequate provision of funds, manpower and the employment of appropriate methodology. On the issue of the adequacy of manpower, the study reveals contradicting opinions. Majority of the teachers argue that there is the inadequacy of manpower to implement the CSE curriculum, while 81.51% the students hold the opinion that there is adequate manpower indicating significant differences between teachers and students.

Conclusion

The finding of this research reveals the inadequate provision of facilities and equipment the inadequate manpower and funds for the implementation of computer science education in colleges of education in Kano and Jigawa states. The research, therefore, concluded that the required trained and qualified teachers who will teach at lower and upper basic levels of Nigerian educational system could not be produced. As such, the stated

objectives of NPE (2004) and NCCE (2012) have a long way to be achieved.

Recommendations

Based on the findings of the study, it is recommended as follows:

1. The stakeholders of education in collaboration with other agencies and non-governmental organizations should come to the aid of computer education by procuring adequate facilities and equipment in these states (Kano & Jigawa).
2. Kano and Jigawa State governments should consider the possibilities of establishing the educational trust fund similar to that of TETFUND at to support computer education in their colleges of education. This will intensify government efforts towards the financing of tertiary education across the states.
3. To provide sufficient manpower that would be entrusted with the responsibility of implementing computer science education in colleges of education at Kano & Jigawa state; the governments of these states should sponsor those that excelle# in this area to further their studies either at home or abroad to come and conduct a step down training to others.

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