

**COMPETENCIES POSSESSED BY JUNIOR SECONDARY SCHOOL  
TEACHERS IN TEACHING AND LEARNING OF COMPUTER SCIENCE  
SUBJECT IN OREDO LOCAL GOVERNMENT AREA.**

**BY**

**Chukwuka Blessed AGUPUGO**

**EDU1001518**

**FACULTY OF EDUCATION,  
UNIVERSITY OF BENIN,  
BENIN CITY.**

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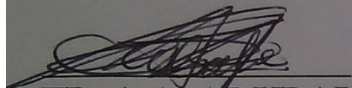
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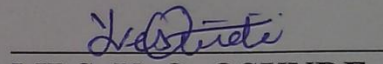
**A PROJECT SUBMITTED TO THE DEPARTMENT OF  
EDUCATIONAL PSYCHOLOGY AND CURRICULUM  
STUDIES (EPCS), FACULTY OF EDUCATION,**

**UNIVERSITY OF BENIN IN PARTIAL FUFILMENT OF  
THE REQUIREMENTS FOR THE AWARD OF B.Sc.(ED)  
DEGREE IN COMPUTER SCIENCE.**

## CERTIFICATION

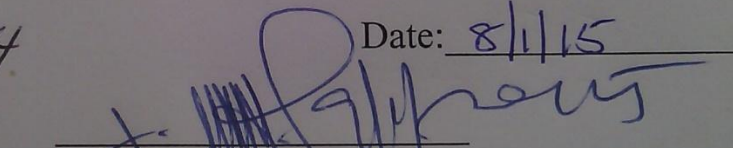
We certify that this work was carried out by Chukwuka Blessed AGUPUGO in the department of Educational Psychology and Curriculum Studies, Faculty of Education, University of Benin, Benin City, Nigeria in partial fulfillment for the requirements of the award of the B.Sc. (Ed) degree in Computer Science Education

  
FR. A.A. ADUBALE (Ph.D)  
Project Supervisor

  
MRS. Y. O. OSUNDE  
Project Coordinator

Date: 29/12/2014

Date: 8/1/15

  
PROF. (MRS.) L. I. SALAMI  
Dean, Faculty of Education

Date: \_\_\_\_\_

## **DEDICATION**

I dedicate this work to my parents (Mr. & Mrs. Dominic Agupugo) who have been there for me throughout my stay in the University of Benin, also my brothers and sisters who have been there for me.

## **ACKNOWLEDGEMENTS**

First and foremost, I'd like to appreciate God almighty who kept me safe throughout my years in the University. I'd like to recognize my parents Mr. & Mrs. Dominic Agupugo for their undiluted love and support through thick and thin. My wonderful brothers and sisters (Emeka, Ikenna, Chioma and Eki) and my aunty (Mrs. Rita Enotiemwonmwan), your love has kept me going.

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## **ABSTRACT**

This study was designed to assess the competencies possessed by junior secondary school teachers in teaching and learning of computer science in Oredo Local Government of Edo State. To achieve the fundamental goals of this research, three (3) research questions were raised.

This research design for the study was the survey design, five (5) schools were randomly selected within the local Government Area. Simple random technique was used to select a hundred students and seven (7) teachers were used as the sample for the study. The researcher used structured questionnaires to collect data from the respondents and also simple percentage and SPSS for data analysis.

The study revealed that computer teachers are competent and Computer science teachers have practical knowledge of computer science also, computer science teachers demonstrate adequate teaching skills in teaching computer science. Based on the findings, the following recommendations were made: Teachers should be trained in the use of internet and it's utilization to update their knowledge, Teachers should refresh their knowledge of computers and computer science periodically and Teachers should devise means for making their students enthusiastic about computer science lessons.

# CHAPTER ONE

## INTRODUCTION

### **Background to the study**

Education is an instrument for effecting the development of the citizens of any nation and the nation in general. Science education, on the other hand is the factory that produces the required scientist needed for the development of any nation. Its teaching provides knowledge and understanding of the complexity of the physical world, the forms and the conduct of life. The best and available option for the improvement of technological know-how in countries all over the world is a solid foundation in science. Among the several branches of science, computer science has proven to contribute immensely to the quality of life and the economy of nations and at present computer technology has permeated nearly all aspects of human organizational roles and education.

Computer science has been identified as a very important science subject and its importance in scientific and technological development of any nation has been widely reported. It is as result of this that the federal government of Nigeria included computer science among the subjects in the school curriculum (FRN, 2004). This inclusion of the study of computer science in the school curriculum

was aimed at providing opportunity for every student to become computer literate. The study of computer science, which is described as the learning that can lead to computer literacy, has in effect gained tremendous influence on the student and the society. However, the use and study of computers in Nigeria is recent when compared to other parts of the world where computers have been in use in all facet of human endeavor including offices, schools, industries, research centers, communication, hospitals to mention but a few. Hence the need for computer science to be taught effectively in our schools cannot be overemphasized.

According to Fakeye (2010), to teach is to help someone acquire skills, attitude, knowledge, appreciate an information or idea. It includes provision of conditions that can promote the building of attitudes, skills development and other aspects of learning. Unless learning takes place as a result of some efforts, it cannot be concluded that teaching has taken place. This implies that a teacher will not be able to help someone acquire skills, attitude, knowledge, appreciate an information or idea he or she doesn't have enough information /knowledge on how to go about achieving such objectives. Teaching can be effective if the teacher has the required competency in that subject area.

Science in general and computer science in particular is resource intensive (i.e. human and material). Dearth of these resources has been the challenge facing the introduction of this subject in the school curriculum. Sam & Omoruyi (2013) were of the view that inadequate computers for use and inadequate instructional materials or teaching aids are the most serious or critical problems associated with the teaching and learning of computer science. Also, they pointed out that lack of motivation and incentive for teachers, lack of encouragement and motivation for the students, students' apathy and indifference as problems associated with the teaching of computer science. Yusuf (1998) was of the opinion that teacher's incompetence is the major problem associated with the dissemination and diffusion of computer education in Nigerian secondary schools. He further reiterated that availability of the resources needed for effective teaching doesn't make for the utilization of the same as utilization is hinged not only on availability but on competency in the usage.

In modern world, the computer is being gradually applied in all aspects of human endeavor and through it information is growing rapidly. Science and technology is dynamic in nature; rapidly changing with new innovations. In order for Nigeria to compete favorably with other developing and developed countries of the world in the area of science and technology, science and computer science

education in particular needs to be given a closer look. The responsibility of bringing the national objectives on science and technology with computer science at its core to fruition, which led to the inclusion of computer science in the secondary school curriculum, has been laid on teachers. Competency, therefore, on the part of the teachers is what is needed. UNESCO (2005) defines competency as a set of attributes covering knowledge, skills and attitudes for enabling one to effectively perform the activities of a given occupation or function to the standards expected in employment. According to Abe (2014), the quality of education of a nation could be determined by the quality of her teachers. Also, Yusuf (2005) asserts that teachers' competence is of particular concern when new subjects are introduced into the school system. This is because teachers' experience and competence will form the foundation of their ability to implement the innovation in schools.

Green (1991) argued that teaching is basically meant for competency, understanding and problem solving. According to him a competent person in any area knows how to do his work well as much important as teaching of facts and skills, in the acquisition of competency, and a standing problem-solving. Green however, noted that not all competencies in life involve the ability to solve problems because, as a generalization, the more competent a person is in his

business life, as well as his personal life, the fewer the problem he has to contend with. Kadel (2005) was of the opinion that regardless of the quantity and quality of materials placed in classrooms/laboratories, the key to how the materials are utilized is the teacher; therefore teachers must have the competence and the right attitude towards teaching. A teacher cannot perform if he/she has no standard, sound knowledge or experience of the facts he/she was supposed to impart to the student. Evaluation plays a very important role in determining the teacher's performance and that of the student. It provides information on the variations in the achievement of individual student by analyzing the achievement of each child in the subject; the teacher gets to know the individual differences and difficulties of his students. He is then in the position to direct his teaching to the specific problems identified and render help that is appropriate to the difficulties encountered.

### **Statement of Problem**

A good teacher is like a candle; it consumes itself to light the way for others. Ude (1999) was of the opinion that a teacher is meant to impart the required knowledge to his students. However, one of the reasons for the poor quality of teaching of computer science teachers was an influx of men and women into the teaching field who claimed to be teacher under auxiliary teaching cadre. Besides,

if the teachers do not have mastery of the subject matter, it certainly affects the student's performance as the effectiveness of a teacher is judged by the academic performance of the students.

Students are expected to master the skills of computer appreciation or application and not just what it is and can do. Students are therefore expected to be taught in a way as not only to conceptualize and understand the computer, but also to be able to effectively manage their own learning, reinforce it and apply such knowledge or training in practical situation.

Based on this background, the researcher is interested in investigating the competencies possessed by junior secondary school teachers in teaching of computer science subject, using Oredo Local Government Area as a case study.

### **Purpose of the Study**

The major purpose of the study is to:

1. Investigate the competencies possessed by computer science teachers in teaching computer science in junior secondary schools.
2. To investigate the extent to which computer science teachers in junior secondary schools are computer literate
3. To investigate the effectiveness of teachers teaching computer science in junior secondary schools.

4. To identify the major problems confronting teachers of computer science in junior secondary schools.

### **Research Questions**

To guide this study, the following research questions were raised.

1. Do computer science teachers have practical knowledge of computer science?
2. Do computer science teachers demonstrate adequate skills in computer science teaching?
3. Is there any difference between the practical method of teaching computer science as perceived by male and female students?
4. Is there any difference between adequate teaching skills demonstrated by computer science teachers as perceived by male and female students?

### **Hypothesis**

1. There is no significant difference between adequate teaching skills demonstrated by computer science teachers as perceived by male and female students.

### **Significance of the Study**

One of the needs for research in science education is to find out the ways the teaching and learning process of science can be improved in Nigeria. Hence,

assessing the competency of teachers in teaching computer science in junior secondary schools will provide information that will be useful in improving the teaching and learning of computer science.

The findings of the study will intimate the ministry of education on the problem facing the teaching-learning process of computer science. Armed with this information, the ministry of education will be better disposed to promoting the teaching and learning of computer science in junior secondary schools by providing qualified computer science teachers and train/retrain the available ones.

Also, the study will provide the empirical data on the competencies of teachers teaching computer science in junior secondary schools for Edo state government and other stakeholders in the educational system for proper implementation of computer science curriculum.

Through the findings of this study the government will have the knowledge of the extent to which computer science teachers competency enhances students' development and the consequential role it can play in the scientific and technological advancement of the nation.

The findings of this study will likely prompt school administrators to monitor or supervise more closely computer science teaching in schools to ensure

that computer science teachers properly implement the science/computer curriculum.

Finally, the findings of this study shall be beneficial in identifying major problems confronting teachers of computer science and the factors responsible for such problems.

### **Scope and Delimitation of the Study**

This study will be delimited to Oredo Local Government Area of Edo state. It is restricted to computer science teachers and students in junior secondary schools in public secondary schools.

### **Operational Definition of Terms**

**Teaching-** teaching is the act of showing someone how to do something that he/she will not be able to do by himself/herself.

**Competency-** a set of attributes covering knowledge, skills and attitudes for enabling one to effectively perform the activities of a given occupation or function to the standards expected in employment.

**Computer-** computer is an electronic device/machine that can store, organize and find information, do calculation and control other machines.

**Computer literacy-** a state of being trained in computer education and instruction and being able to tell the computer what he wants done.

**Computer science-** this is the study of computer and their usage.

**Academic performance-** the performance of students after a session of instruction which is measured using required techniques and shows the extent to which the learning objectives have been achieved.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

This chapter focuses on the review of related literature to the competencies possessed by computer science teachers in teaching computer science in junior secondary schools and will be done under the following subheadings:

- Computer Science
- Computer Science Teaching/Education
- Concept of Teachers' Competence
- Effective Teaching
- Environment and Resources for the Teaching/learning of Computer Science
- Summary of Literature Review

#### **Computer Science**

The computer is general purpose device that can be programmed to carry out a set of arithmetic or logical operations automatically while computer science is the scientific and practical approach to computation and its applications (Wikipedia). It is an electronic device which is manufactured to accept an ordered sequence of instructions, given to it an appropriate language and to carry out these instructions with great speed and accuracy. The computer is regarded as a

revolutionary invention of the 20th century. According to Yusuf (1998), this revolution stems from its pervasive application in various facets of human endeavours. It has revolutionized the social, technological, political and economic spheres of the modern world. Computer has been used successfully in medicine, banking, science, space exploration etc. it has found applications in instructional delivery and educational administration and management.

### **Computer Science Teaching**

Computer Science education started in Nigeria with the establishment of three Computer Science departments in 1973. The philosophy of the curriculum was to develop manpower to operate computing machines. The introduction of computer science education into the junior secondary school system in Nigeria is to enhance the attainment of the objectives of secondary education. According to Yoloye (1990), computer was introduced into Nigerian secondary schools in 1989. The pilot scheme was started with the federal government college (unity schools) and the armed forces secondary schools. Training programs were also conducted for teachers from the schools used for the pilot scheme. The aim of computer education in Nigeria according to Aminu (1988) is to bring Nigerian children into contact with the computer, so that they can use it, appreciate its potentials, understand how it works and learn to apply the knowledge and skills to solve emerging problems.

## **Methods for Teaching Computer Science**

Adenowo, Adenle and Adenowo (2013) outlined several methods for teaching computer science in schools. These include:

**Lecture Method:** very useful for introducing new subjects or topics, and for summarizing ideas. May not be the most effective teaching strategy because it creates a predominantly passive learning experience where students, generally, are exposed to information, and are rarely given the opportunity to process it, and also prevents accurate notes taking.

**Discussion Method:** a group-learning method whereby the instructor and the students generate and share ideas, experiences, opinions, and information. It is a participatory rather than autocratic approach to teaching and learning whereby the teacher and learners' contributions are essential.

**Practical Demonstration Method:** a basic method of instruction for teaching skill-type subject matter. The practical demonstration is used to teach how to perform certain skills. Availing trainees the opportunity to repeat the procedures and instantly correcting the trainees' mistakes make the method very effective and can help them learn the task more quickly. On the other hand, a good number of trainees may end up not understanding (especially in large classes) if demonstrator

does not repeat difficult steps and pause to see trainees' reaction before moving to the next level. It can be stressful and quite expensive for the demonstrator.

**Tutorial Method:** tutorial classes are rigorous intellectual exercise usually facilitated by having a student-leader or tutor presentation, followed by a discussion amongst the group, which later promote independent work. Before tutorials can be organized students must have been well exposed to the concept in classroom setting. They mostly do not require elaborate structure or direction on the part of the tutor, because they are simply a thoughtful and constructive dialogue around issues raised in the readings or after the lecture. However, experience has shown that some students do not appreciate tutorial and prefer to study alone, because they perceive tutorials as mere repetitions of normal class sessions.

**Supervised Project Method:** makes student go through independent study of real life situations as it relates to the subject matter learnt in the classroom. A disadvantage occurs when supervised project is not focused on the growth of student-teacher as a practitioner; consequently, the teacher-trainee cannot apply acquired skills to real life situations.

**Problem Solving/Inquiry Method:** an innovative approach to learning and it is a mental process that involves finding and shaping problems. It requires higher-order cognitive processes, and development of very fundamental academic/problem solving skills which many students may lack. It also consumes a lot of the teacher's time since he needs to make a lot of planning.

**Student's Guided Practice Method:** a means of facilitating the thought processes that are needed in applying scientific principles to problems and is based on the assumption that the teacher will guide the learner's progress by means of commands and cues." Students' Guided Practice method offers opportunity for one-to-one tutoring with constructive feedback, and improves learners' thinking abilities. On the other hand Student's Guided Practice Method can result in emotional imbalance for the learner because the teacher has to monitor learner's progress.

**Excursion Method:** defined as a trip by a group of people, usually made for leisure or educational purposes. It is an organized visit to special places in order to acquire direct learning experiences which classroom teaching cannot offer. Computer science teacher trainees are expected to make excursions to computer firms during their second year of study. Excursion trip can only be meaningful if the outcomes of the excursion are integrated into the teaching programs, to improve teaching and learning processes. Due to the nature of excursion, teachers

are forced to use new teaching methods which are not the regular practice during class sessions, thus new experiences are acquired. Hence, teachers become more confident in their post-excursion classroom practices. It also provides alternative learning strategy for students by improving their observation abilities since they are exposed to real life situation. So, excursions add variety that is beneficial to students and teachers, teaching and learning become more interesting and engaging. Some disadvantages of excursion method include time consumption and the associated high cost. It involves a lot of risk and may disrupt the school time table.

**Seminar Method:** a form of academic instruction carried out either in an academic institution or offered by a commercial or professional organization. It has the function of bringing together groups of people for recurring meetings, focusing—each time—on some particular topics, in which everyone present is requested to actively participate. Seminar is a student-centered teaching method which improves self-directed learning in students.

### **Concept of Teacher's Competence**

Competence is the ability to do something or perform a task as expected or according to stipulated standard. It entails having sufficient skills, knowledge, ability or qualifications. According to Harvey (2011), competence is the acquisition of knowledge, skills and abilities at a level of expertise sufficient to be able to perform in an appropriate work setting. Wojtczak (2002) described

competence as the possession of a satisfactory level of relevant knowledge and acquisition of a range of relevant skills that include interpersonal and technical components at a certain point in the educational process. Such knowledge and skills are necessary to perform the tasks that reflect the scope of professional practices.

Teachers' competence on the other hand can be described as the application of acquired instructional knowledge, skills and attitudes for efficient and effective teaching. In this vein, the Cultural Heritage National Training Organization (2004) argued that competence is linked to an ability to perform activities within an occupation or function; work consistently to agreed standards.

Teachers' competence means more than the knowledge and skills acquired on a particular subject area. It rather involves the teachers' ability to apply and appropriately utilize acquired instructional knowledge, attitudes and skills to achieve the desired instructional objectives. In the light of this, Harvey (2011) expressed that competence is more than just knowledge and skills; it involves the ability to meet complex demands by drawing on and mobilizing psychosocial resources in a particular context.

However, instructional knowledge, attitudes and skills are fundamental factors determining the competence of teachers. That is, teachers' competence depends, to a large extent, on their acquisition of relevant knowledge, attitude and

skills in their area of specialization. It is therefore not possible for a teacher to demonstrate competency in teaching a particular subject when he manifest poor knowledge and attitude to the subject.

The qualities and competence of computer science teachers at the junior secondary school level are very important. In the light of this Oyekan (2006) argued that in the implementation of a curriculum development product, the teacher is the most important factor. The teacher is the prime executor of government policies on education.

### **Effective Teaching**

The quality of any educational program depends on the quality of those who teach it which underscores the importance that should be attached to the production of high quality teachers. The National Policy on Education (NPE, 2004) pointed out that “no educational system may rise above the quality of its teachers”. In the teaching of computer science, teachers are required to have a good mastery of the subject matter, have the necessary instructional aids/resources to make the lesson meaningful before introducing the lesson in the classroom; seeing the subject is resource intensive. This will enhance the effective teaching of the subject (Adeleye, 2006).

The concept of effective teaching entails achieving the desired instructional and behavioral objective of every teaching session or lesson. When teaching is effective, the desired behavioral change as a result the teaching-learning process is achieved. Effective teachers strive to motivate and engage all the students in learning rather than simply accepting that students cannot be engaged and are designed to do poorly. Effective teaching involves the teacher believing every student is capable of achieving success at school and they do all they can to find ways of making each student successful. Gurney (2007) opined five factors that affect effective teaching which include:

- Teacher knowledge, enthusiasm and responsibility for learning
- Classroom activities that encourage learning.
- Assessment activities that encourage learning through experience.
- Effective feedback that establishes the learning process in the classroom.
- Effective interaction between the teacher and the students, creating an environment that respects, encourage and stimulates learning through experience.

It has been established that there is a high correlation between what teachers know and what they teach. Thus, the ability to teach effectively depends on the teachers' knowledge of the subject matter. According to Fakeye (2012), teachers

are handicapped if they are unfamiliar with the body of knowledge taught and teachers' characteristics is subject specific. Adediwura and Bada (2007) stated in their study that nobody could teach what he does not understand or know. They went further to state that they (teachers) must thoroughly understand the content of what they teach. A teacher whose understanding of topic is thorough, uses clearer language, their discourse is more connected, and they provide better explanations than those whose background is weaker. The way the students perceive the teaching in terms of their (teachers) knowledge of content of subject matter may significantly affect the students' academic performance. Because of this, the teacher should therefore master the subject matter before teaching commences (Fakeye, 2012). Furthermore, Fakeye noted that most teachers go into teaching without knowing what to teach. It is to be noted that pedagogical knowledge are not exactly the same thing as knowledge of subject matter, they nevertheless are, intimately linked with it, because teachers' mastery and use of them in the classroom will indicate the depth of their knowledge of subject matter.

Afolayan, Adebajo and Olubiyi (2011) stressed the need for teachers to possess self-evaluation skills to aide effective teaching. These skills were outlined using steps known as the six tasks of a teacher. These tasks include:

### **Planning**

- Decide what students should learn (prepare objectives/tasks).

- Put the content in a suitable sequence.
- Allocate amounts of time to different learning activities.
- Select learning activities and teaching methods. Choose assessment procedure (including methods and timing).
- Identify resources needed. Inform the students about the plan.

### **Communication**

- Tell, explain, and advise.
- Help students to exchange ideas.
- Provoke students' thinking.
- Use varied teaching techniques.
- Check whether students understand what you are teaching.

### **Providing resources**

- Prepare, select or adapt educational materials (audio visual, real-objects), hardware, software, etc.).
- Arrange learning experiences, especially opportunities to practice skills (field visits, attachments and projects).
- Involve health service personnel in teaching.
- Arrange access to materials (such as libraries, audio-visual programs and microscopes).

## **Counseling**

- Show students that you care.
- Listen and show empathy.
- Help students to identify their options and to make their decisions.
- Provide advice and information that helps students.

## **Assessment**

- Design an assessment that measures how much students have learnt.
- Use the assessment to guide students' learning.
- Use the assessment to give feedback that modifies teaching.
- Use the assessment to decide whether students are competent to provide health care.
- Encourage students to use self-assessment and peer-assessment.

## **Continuing self-education**

- Know the subject matter that is taught and where to find relevant information.
- Know the way in which health care is provided locally.
- Set an example as a continuous learner.

## **Environment and Resources for the Teaching/learning of Computer Science**

The learners' environment should be the best teaching and learning resources in science. Science processes involve exploration of learners' environment and for there to be a change in the performance of students, there is the need for both the students and the teachers to fully explore their environment. Students' academic performance in science will not be better unless learners' environment is fully explored (Kola & Joseph, 2013).

Science should always be taught in the laboratory, though there have been arguments about the possibility of it being taught outside a laboratory i.e. a classroom. A science laboratory is a school building or block designed specifically to carry out experiment which should be large enough to allow students have no difficulty in seeing the board, as well as what is happening on the demonstration desk which is always on a platform which enables teachers see what the students are doing from their own desks. It must have two doors, one on either side and windows on either side which should not have burglary proof to ensure easy escape of students in case of explosion or fire outbreak etc. (Adesoji and Adeleke, 2006).

## **Summary of Literature Review**

This chapter which is on the review of related literature to the competencies possessed by junior secondary schools teachers in teaching and learning of computer science looks briefly into: computer science and computer science teaching, effective teaching and the concept of teachers' competence. Finally, environment and resources for the teaching/learning of computer science

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This chapter of the research study is designed to look into the method used in carrying out the research work. The areas examined include the following:

- Research Design
- Population of the study
- Sample and Sampling Technique
- Research Instrument
- Validity of instrument
- Method of data collection
- Method of data analysis

#### **Research Design**

The study employed a descriptive survey research design which investigated the competencies possessed by computer science teachers in teaching computer science in junior secondary schools in Oredo Local Government Area of Edo state.

This method enabled the researcher to analyze the result obtained from the sample to describe the present condition of the population using the variables under study.

## **Population**

All the junior secondary school computer science teachers in public schools in Oredo Local Government Area of Edo State constituted the population for this study.

## **Sample and Sampling Technique**

The sample for the study is made up of five (5) junior secondary schools consisting of seven (7) teachers and 100 students. The sampling technique employed by the researcher is the simple random sampling technique. The sampling was based on the following variables namely: knowledge (Teachers' practical knowledge of computer science.) and teaching skills (Demonstration of adequate teaching skills). The schools selected include:

## **Research Instrument**

The research instrument used for collection of data for this study was a questionnaire. Two questionnaires were used which include teachers questionnaire and students questionnaire. The questionnaires were divided into two (2) sections (A and B) each. Section A of the teachers' questionnaire dealt with the knowledge

of teachers and, section **B** dealt with teachers' demonstration of adequate skills while section **A** of the students questionnaire dealt with the demographic data of the students and section **B** dealt with the students learning. The teachers' questionnaire is a 13 Likert type scale items likewise the students' questionnaire. The items were rated as follows: for section **B**, strongly agree, agree, disagree and strongly disagree.

### **Validity of Instrument**

The questionnaires were subjected to validation by two lecturers in the faculty of education and also the supervisor. The supervisors' suggestions and comments were incorporated in the final draft of the questionnaire.

### **Method of Data collection**

The questionnaires were administered to the teachers and the students personally in the sampled schools that were used for the study with the researcher ensuring 100% returns of the questionnaires in the various schools by waiting to collect the questionnaires.

### **Method of Data Analysis**

The data collected from the respondents were analyzed using the percentage, means, standard deviation and t-test statistics with significance set at  $p < 0.05$ .

## CHAPTER FOUR

### ANALYSIS OF DATA INTERPRETATION AND DISCUSSION OF RESULTS

The chapter presented statistical analysis of data interpretation and discussion of results findings on the level of competencies possessed by junior secondary school teachers in teaching and learning of computer science subject in Oredo Local Government Area of Edo State. The data will be analyzed based in the research questions raised in chapter one.

#### Research question 1

Do computer science teachers have practical knowledge of computer science?

**Table I: Teachers' practical knowledge of computer science.**

S/N	Items	No of items	Agree	% of agree	Disagree	% of disagree
1	I can effectively set up the required hardware's to a computer	7	7	100	0	0
2	I have good knowledge of basic software application.	7	7	100	0	0
3	I can start up, shut	7	7	100	0	0

	down and operate a computer system using any operating system.					
4	I have good knowledge about the internet and its utilization.	7	5	71	2	29
5	I refresh my knowledge of computers and computer science periodically.	7	5	71	2	29
Average		35	62	89	4	11

From the table above, there are five (5) questions raised under the research question. The first question shows that 100% of the respondents agreed that they can effectively set up the required hardware's to a computer while 0% disagreed.

The second question shows that 100% of the respondents agreed that they have good knowledge of basic software application while 0% disagreed.

The third question shows that 100% of the respondents agreed that they can start up, shut down and operate a computer system using any operating system while 0% disagreed.

The fourth question shows that 71% of the respondents agreed that they have good knowledge about the internet and its utilization while 29% disagreed.

The fifth question shows that 71% of the respondents agreed that they refresh their knowledge of computers and computer science periodically while 29% disagreed.

Altogether, 89% of the respondents agreed that they have practical knowledge of computer science while 11% disagreed. It can therefore be concluded that the teachers have practical knowledge of computer science.

## **Research question 2**

Do computer science teachers demonstrate adequate skills in computer science teaching?

**Table II: Demonstration of adequate teaching skills in computer science teaching**

S/N	Items	No of items	Agree	% of agree	Disagree	% of disagree
6	I always use the available instructional aids while teaching computer science	7	7	100	0	0
7	I always carry out evaluation after my lessons	7	7	100	0	0
8	I effectively demonstrate my skills in computer science teaching	7	7	100	0	0
9	My students are always given assignments to make them explore more about the computer, its applications and usage.	7	7	100	0	0
10	I always cover the scheme of work at the end of every week	7	5	71	2	29

11	I use the required teaching methods for teaching computer science	7	7	100	0	0
12	My students are always enthusiastic about computer science lessons	7	4	57	3	43
13	I teach my students how to maintain and manage the computer laboratory.	7	7	100	0	0
Average		65	6.5	91	0.625	9

From the table II above, there are eight (8) questions raised under the research question. The first question shows that 100% of the respondents agreed that they always use the available instructional aids when teaching computer science while 0% disagreed.

The second question shows that 100% of the respondents agreed that they always carry out evaluation after their lessons while 0% disagreed.

The third question shows that 100% of the respondents agreed that they effectively demonstrate the skills in computer science teaching while 0% disagreed.

The fourth question shows that 100% of the respondents agreed that they always give assignments to their students to make them explore more about the computer, its applications and usage while 0% disagreed.

The fifth question shows that 71% of the respondent agreed that they always cover the scheme of work at the end of every week while 29% disagreed.

The sixth question shows that 100% of the respondent agreed that they use the required teaching methods for teaching computer science while 0% disagreed.

The seventh question shows that 57% of the respondent agreed that their students are always enthusiastic about computer science lessons while 43% disagreed.

The eighth question shows that 100% of the respondent agreed that they teach their students how to maintain and manage the computer laboratory and 0% disagreed.

Altogether, 91% of the respondents agreed that they demonstrate adequate skills in computer science teaching while 9% disagreed. It can therefore be concluded that computer science teachers demonstrate adequate skills in computer science teaching.

## Hypothesis 1

There is no significant difference between adequate teaching skills demonstrated by computer science teachers as perceived by male and female students.

**Table III: Independent Sample Test.**

SEX	N	MEAN	STANDARD DEVIATION	t	df	Sig. (2-tailed)
Male	37	35.4595	5.94696	1.316	98	.191
Female	63	33.6825	6.82931			

From table III, the P-value of .191 was obtained which is higher than the 0.5 significant level. From the mean score, a difference of 1.7770 is obtained in favor of the males. A t-test was conducted. The result showed a t-value of 1.316 which was significant at 0.191. It therefore means that there is no significant difference between adequate teaching skills demonstrated by computer science teachers as perceived by male and female students. Thus the null hypothesis was retained.

## **Discussion of findings**

The analysis of the results obtained from the various tables above form the basis of the discussion of findings of the study.

Research question 1 indicated computer science teachers' practical knowledge of computer science. 89% of the respondents agreed that they have practical knowledge of computer science.

It can therefore be concluded that computer science teachers have practical knowledge of computer science. The researcher could not find any citation to support these findings because there were no published journal which made reference to this findings, also the unpublished journals reviewed by the researcher in the school library did not make any reference to the findings.

Research question 2, table II indicated demonstration of adequate teaching skills in computer science teaching. 91% of the respondents agreed that they demonstrate adequate teaching skills in computer science. It can therefore be concluded that computer science teachers demonstrate adequate teaching skills in teaching computer science. Which is against the findings of Ude (1999), who is of the opinion that one of the reasons for the poor

quality of teaching of computer science teachers was an influx of men and women into the teaching field who claimed to be teacher under auxiliary teaching cadre

Research question 3, table III indicated that there is no significant difference between adequate teaching skills demonstrated by computer science teachers as perceived by male and female students.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

This chapter summarizes the research findings and also conclusion and recommendation.

#### **Summary of findings**

This research was designed to assess the competency possessed by junior secondary school teachers in teaching and learning of computer science in Oredo Local Government Area of Edo State. To carry out this study, three research questions were asked, and five junior secondary schools were randomly selected from Oredo Local Government Area. A total of one hundred students were randomly used for the study. A questionnaire was used to collect data from both teachers and students which showed that computer science teachers are competent.

#### **Conclusion**

The following conclusions were made:

1. Computer science teachers have practical knowledge of computer science.
2. Computer science teachers demonstrate adequate teaching skills in teaching computer science.

## **Recommendations**

On the basis of the findings, the following recommendations were made:

1. Teachers should be trained in the use of internet and it's utilization to update their knowledge.
2. Teachers should refresh their knowledge of computers and computer science periodically.
3. Teachers should devise means for making their students enthusiastic about computer science class.

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## APPENDIX I

**DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND  
CURRICULUM STUDIES  
FACULTY OF EDUCATION  
UNIVERSITY OF BENIN  
BENIN CITY.  
QUESTIONNAIRE**

Dear respondents,

The purpose of this questionnaire is to find out the level of learning possessed by students of computer science in junior secondary schools in Oredo Local Government Area of Edo State.

The researcher will greatly appreciate your co-operation in providing relevant information. You are assured that the information supplied on the questionnaire will be used only for the purpose of this research and will be treated as strictly confidential. Thanks for your co-operation.

**Instruction:** Please tick [] as appropriate

### SECTION A

Name of school: \_\_\_\_\_

Sex: Male [  ] Female [  ]

Sex of teacher: Male [  ] Female [  ]

## SECTION B

Please tick [✓] as appropriate.

S/N	LEVEL OF STUDENTS LEARNING	SA	A	D	SD
1	I can operate a computer system using any operating system.				
2	I have good knowledge about the internet and its utilization				
3	My teacher teaches me how to use the basic applications like Microsoft word				
4	My teacher always takes us to the computer laboratory for practical lessons				
5	My teacher teaches me how to connect the required hardware to a computer				
6	My teacher has taught me how to use the mouse				
7	My teacher teaches me how to use the keyboard and the shortcut combinations in the keyboard.				
8	My teacher teaches me how to manage the computer laboratory				
9	My teacher teaches me how to save files/documents on storage devices.				
10	My teacher teaches me how to manage and maintain the computer.				
11	My teacher always ask questions after each computer science lesson				
12	My teacher always demonstrate to me during computer science lessons				

**APPENDIX II**

**DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND  
CURRICULUM STUDIES  
FACULTY OF EDUCATION  
UNIVERSITY OF BENIN  
BENIN CITY.  
QUESTIONNAIRE**

Dear respondents,

The purpose of this questionnaire is to find out the level of competencies possessed by teachers teaching computer science in junior secondary schools in Oredo Local Government Area of Edo State.

The researcher will greatly appreciate your co-operation in providing relevant information. You are assured that the information supplied on the questionnaire will be used only for the purpose of this research and will be treated as strictly confidential. Thanks for your co-operation.

**Instruction:** Please tick [] as appropriate

**SECTION A**

Name of school: \_\_\_\_\_

Sex: Male [  ] Female [  ]

Highest Qualification: N.C.E [  ] B.Sc. (Ed) [  ] B.Sc. [  ] H.N.D [  ] O.N.D [  ]  
M.Sc. [  ] Others [  ]

## SECTION B

Please tick [] as appropriate.

S/N	TEACHERS KNOWLEDGE	SA	A	D	SD
1	I can effectively set up the required hardware's to a computer				
2	I have good knowledge of basic software application.				
3	I can start up, shut down and operate a computer system using any operating system.				
4	I have good knowledge about the internet and its utilization				
5	I refresh my knowledge of computers and computer science periodically.				
6	I always use the available instructional aids while teaching computer science.				
7	I always carry out evaluation after my lessons				
8	I effectively demonstrate my skills in computer science teaching				
9	My students are always given assignments to make them explore more about the computer, its applications and usage.				

10	I always cover the scheme of work at the end of every week				
11	I use the required teaching methods for teaching computer science				
12	My students are always enthusiastic about computer science lessons				
13	I teach my students how to maintain and manage the computer laboratory.				