



# AVAILABILITY AND UTILIZATION OF INSTRUCTIONAL MATERIALS IN THE TEACHING OF COMPUTER SCIENCE IN SECONDARY SCHOOLS IN OSHIMILI SOUTH LGA.

## ABSTRACT

The study examined the availability, utilization and effect of instructional materials in teaching of computer science in junior secondary schools in Oshimili South Local Government Area, Delta State. Two research questions and one null hypothesis in line with the purpose of the study guided the study. This study adopted a descriptive survey research design. The study was carried out in Oshimili South Local Government Area and population for

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## INTRODUCTION

Instructional material is crucial to the teaching and learning processes. A dedicated classroom teacher feels satisfied when he realizes the objectives he has set out to achieve for every lesson. In order to achieve this, a trained teacher employs a number of methods, design and actions, one of which includes the use of instructional material. Instructional materials are referred to as the resources which both the teachers and students use for the purpose of effective teaching and learning. Okwo (2010) defined instructional materials as those materials that teachers can use in teaching to facilitate the learning of a particular subject or lesson. The lists of instructional materials are inexhaustible and their limit is the teacher's level of resourcefulness, creativity and imagination.

Computer science as a subject has become one of the most fast growing and far reaching developments in Nigeria secondary schools. It is a subject through which students are taught the rudiments of using the computer to store and process data/information accurately and efficiently (Okebukola, 2013). The process seeks to equip the students with skills and knowledge that can make him/her use the computer effectively (Olayinka,



*the study consists of thirty one (31) computer science teachers in Nine (9) public secondary schools in Oshimili South LGA. The study therefore did not sample due to the reason that the population is of manageable size. The instrument used for data collection was researcher structured questionnaire titled Availability, Utilization and Effect of Instructional Material for Teaching Computer Science (AUEIMTCS), the instrument was validated by two experts. The instrument was administered by the researcher and two research assistants who were trained by the researcher on what to do. Thirty five (35) copies of the questionnaire were administered, at retrieval thirty one (31) copies were retrieved within the space of time. Mean and standard deviation was used to analyze the data retrieved from the respondents. Findings revealed that the instructional material available and utilized in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State are not interactive enough to equip students with needed technological skills and knowledge in computer. And also they are basically traditional tools which are not up-to date with the current technology. Schools should collaborate with government in other to provide instructional materials that will help the students to acquire needed computer skills and knowledge and also teachers should as at when necessary attend workshops that will train them on the use of these instructional materials.*

**Keywords:** *instructional material, computer science, availability, utilization.*

2016). Effective teaching of computer science requires the use of virtual reality. In this modern age, teaching is supported by technologies (instructional materials) such as multimedia projectors, interactive whiteboards, 3-dimensions display devices, among others. Instructional materials refer to anything a teacher uses in teaching and learning situation from small stones, pieces of papers, small sticks, sample of leaf, chalk board, maps, charts, radio, television, computers, and so on.

Russell, (2010) listed instructional material to include newspaper, magazines, pictures, textbooks, chalkboard, laboratory equipment, posters, bulletins, journal, radio, television, audiocassettes, tapes, film scripts and slides. Others are overhead and opaque projector, real objects and computer. Okebukola (2013) described instructional materials as information multipliers because they are capable of providing learners with opportunities to learn beyond the teacher's capabilities when utilized for instruction.



Availability and utilization of instructional material is the act of using and applying the available instructional material in the actual teaching/learning process. Where resources are supplied for instructional use, teachers are expected to utilize them to support a smooth and meaningful flow of instruction and promote understanding of the content being taught. To facilitate the teaching and learning of computer science in secondary schools, the skillful teacher can select those instructional materials that are relevant to the computer science curriculum. This could be implemented from the numerous instructional materials that abound in the market or that are available in the school. When instructional materials are not utilized, effective teaching and permanent learning are difficult to take place because students cannot actively participate in a way that challenges them to think creatively (Nwobu, 2009). Despite the intention of the Universal Basic Education (UBE) Programme, adequate provision and utilization of instructional material for effective teaching and learning of computer science has not been attained (Okebukola, 2013).

The influence of using instructional in teaching and learning in Educational development is indisputable. The teaching of computer science in Nigerian Secondary Schools needs to be properly handled. Computer science contributes to the nation's economic development, hence the need to be taught thoroughly if it is to meet the educational and economic development. More so, that computer science is one of the core subjects in junior secondary schools and as an important subject, it cannot be taught effectively without the use of appropriate instructional materials (Ajayi, 2010).

With the above reasons, there is need to carry out research on the availability, utilization and effect of instructional materials in teaching of computer science in junior secondary schools in Oshimili South Local Government Area, Delta State.

### **Statement of Problem**

Since the inception of the National Junior Secondary School Computer Science Curriculum in Nigeria, few studies have been devoted to evaluating the availability, utilization and effect of instructional materials in the teaching of computer science. With daily emergence of digital technology, computer science teachers face both old and new challenges engaging learners in digital learning that meet with the current technological drive. Instructional materials make teaching and learning more understandable, meaningful and easy.



Despite all the efforts made to ensure effective teaching and learning of computer science at the secondary school level in Nigeria especially Delta State, the problem of high rate of failure of students' in computer science practical in internal and external examination have remained unresolved (Olorundare, 2014).

Based on the above, the researchers deemed it necessary to carry on this study on availability, utilization and effect of instructional materials in teaching of computer science in junior secondary schools in Oshimili South Local Government Area, Delta State.

### **Objective of the Study**

The main purpose of the study is to examine the availability, utilization and effect of instructional materials in teaching of computer science in junior secondary schools in Oshimili South Local Government Area, Delta State. Specifically, this study sought to;

1. Find out the availability of instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.
2. Find out whether teachers utilize the available instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.

### **Research Questions**

The following research questions guided the study;

1. To what extent are instructional materials made available in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State?
2. To what extent do teachers utilize the instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State?

### **Research Hypotheses**

**HO<sub>1</sub>** There is no significance difference between the available and utilization of instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.

### **Research Methodology**

The study employed descriptive survey design. The study was carried out in Oshimili South Local Government Area of Delta State. The researchers chooses this area because of the familiarity with the area. The population of this study consisted of thirty five (35) computer science teachers in eleven (11) public secondary schools in Oshimili South LGA.



No sample was taken from the population. The entire population was studied because it is of a manageable size.

The table below shows the list of secondary schools and number of computer science teachers per school.

**Table 1:** Sample Distribution

S/N	Name of Schools	Number of Teachers
1	Afadia College, Asaba	3
2	Asagba Mixed Secondary School, Asaba	4
3	Government Model Secondary School, Asaba	3
4	IsiomaOnyeobi Secondary School, Asaba	3
5	Niger Mixed Secondary School, Asaba	4
6	Osadenis Mixed Secondary School, Asaba	4
7	West-End Mixed Secondary School, Asaba	3
8	Zappa Mixed Secondary School, Asaba	3
9	Zappa Basic Secondary School, Asaba	4
10	Okwe Secondary School Okwe	2
11	Oko Ogbele Community Secondary School, Oko	2
	<b>Total</b>	<b>35</b>

**Source:** Post-Primary Education Board, Asaba, 2021

A structured questionnaire titled “Availability, Utilization and Effect of Instructional Material for Teaching Computer Science Questionnaire (AUEIMTCSQ)” was used to get information from the respondents. The instrument was validated by two experts in School of Science Education, Federal College of Education (Technical) Asaba, Delta State and one teacher in Osadenis Mixed Secondary School, Asaba. They were requested to examine the instrument as regards to its content and face validation. After vetting the instrument, the experts offered useful suggestions that led to the corrections of some items in the questionnaire before production of the final copy.

The questionnaire was made up of two parts. Part A was used to collect information on personal data of the respondents while part B contained four sections, the sections contained items for answering the four research questions. Research question 1 was answered by items 1-8; while research question 2 was answered by items 9 – 16. The questionnaire was structured on a four point scale. The numerical value of the scale points



(Responses modes) are as follows: Very High Extent (VHE) = 4 points, High Extent (HE) = 3 points, Low Extent (LE) = 2 points and Very Low Extent (VLE) = 1 point.

In order to establish the reliability of the instrument, a test re-test method was used to administer the instrument twice to 4 computer science teachers in two public secondary schools in Onitsha, Anambra State, who are not be originally part of the study. Spearman's Rank Order correlation was used to analyze the data and the coefficient gotten was determine if the reliability is high or low. The instrument yielded a coefficient of 0.86, this indicates that the instrument was reliable.

Data collected from respondents were analyzed using mean and standard deviation. The cut-off point was pegged at 2.50; this means that any item scoring 2.50 and above was regarded as high extent while any item scoring below 2.50 is low extent. For null hypotheses, the decision to reject or accept was based on r-critical and t-calculated, when r-critical value is greater than t-calculated value at 0.05 level of significance the null hypotheses was considered accepted and when r- M-critical value is less than t-calculated value at 0.05 level of significance the null hypotheses was rejected.

**Research Question 1:** To what extent are instructional materials made available in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State?

**Table 2:** Mean scores of respondents responses on availability of instructional materials in teaching computer science

S/N	Statement	N	X	S.D	Decision
1	Computers (desktops/laptops) are available in my school.	31	3.00	0.84	High Extent
2	Flash drives are available in teaching in my school.	31	3.09	0.85	High Extent
3	Projectors are available in teaching in my school.	31	1.90	1.08	Low Extent
4	Keyboards are available in teaching in my school.	31	3.19	0.85	High Extent
5	Textbooks are available in teaching in my school.	31	3.51	0.75	High Extent
6	Mouse are available in teaching in my school.	31	3.06	0.98	High Extent





7	Printers are available in teaching in my school.	31	3.41	0.83	High Extent
8	Mother board are available in teaching in my school.	31	2.96	0.99	High Extent
	<b>Grand Mean</b>		<b>3.02</b>		<b>High Extent</b>

Result presented in table 2 from the respondents showed that item 1, 2, 4, 5, 6, 7 and 8 scored above 2.50 of the acceptable mean score, this showed that the respondents rated the statements high extent. Item 3 scored below the acceptable mean score indicating low extent. The grand mean of 3.02 which is above 2.50 of the acceptable mean score showed that the respondents accepted to a high extent that instructional materials are made available in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.

**Research Question 2:** To what extent do teachers utilize the instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State?

**Table 3:** Mean scores of respondents responses on utilization of instructional materials in teaching computer science

S/N	Statement	N	X	S.D	Decision
9	Computers (desktops/laptops) are used for teaching and learning in junior secondary schools.	31	2.84	0.95	High Extent
10	Flash drives are used for teaching and learning in junior secondary schools.	31	2.26	1.04	Low Extent
11	Projectors are used for teaching and learning in junior secondary schools.	31	2.38	1.06	Low Extent
12	Keyboards are used for teaching and learning in junior secondary schools.	31	3.19	0.81	High Extent
13	Textbooks are used for teaching and learning in junior secondary schools.	31	3.45	0.71	High Extent
14	Mouse are used for teaching and learning in junior secondary schools.	31	2.77	1.03	High Extent
15	Printers are used for teaching and learning in junior secondary schools.	31	2.51	0.91	High Extent



16	Motherboards are used for teaching and learning in junior secondary schools.	31	2.29	1.11	Low Extent
<b>Grand Mean</b>			<b>2.71</b>		<b>High Extent</b>

Result presented in table 3 from the respondents showed that item 9, 12, 13, 14 and 15 scored above 2.50 of the acceptable mean score, this showed that the respondents rated the statements high extent. Item 10, 11 and 16 scored below the acceptable mean score indicating low extent. The grand mean of 2.71 which is above 2.50 of the acceptable mean score showed that the respondents accepted to a high extent that instructional materials are utilized in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.

### Test of Hypotheses

**HO<sub>1</sub>** There is no significance difference between the availability and utilization of instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.

**Table 4:** Summary of T-test Analysis between the availability and utilization of instructional materials in teaching computer science in junior secondary schools

Variables	N	Mean	SD	df	tcal	tcrit	Sig.
<b>Availability</b>	22	17.12	5.4				
<b>Utilization</b>	9	15.28	4.8	313	2.01	1.65	0.05

Table 4 indicated that availability had a mean of 17.12 and utilization had a mean of 15.28 with standard deviation of 5.4 and 4.8 respectively, and t-calculated value of 2.01 and t-critical value of 1.65 at 0.05 level of significance and degree of freedom 313. Since t-calculated is greater than t-critical i.e  $t_{cal} 2.01 > t_{crit} 1.65$ , the null hypothesis is rejected and alternative hypothesis is accepted and concluded that there is a significant difference on the availability and utilization of instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State.





### **Discussion of Findings**

The result obtained from research question one show that instructional materials are made available in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State. It was revealed that teachers rated “high extent” that computers (desktops/laptops), flash drives, keyboards, textbooks, mouse, printers and mother board are available in teaching computer science in junior secondary schools. The finding is in line with the assertion of Farrant (2010) who asserted that the availability of teaching facilities makes computer lesson concrete and stimulating and helps to enhance the achievement of students in secondary schools.

Result from research question 2 also shows that instructional materials are utilized in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State. It was equally observed that teachers rated high extent that computers (desktops/laptops), keyboards, textbooks, mouse, printers and are utilize in teaching computer science in junior secondary schools. The findings are in line with Mba (2014) who stated that instructional materials when properly utilized, stimulate and help learners to take active interest in the topic presented development of emotional impact of the learners and affect their attitude towards what is portrayed. The usefulness of these materials depends on what the teachers make out of them. Unless the teachers use these materials and direct learners attention to what they should look for, the learners will not learn as intended from such materials.

The result from test of hypothesis revealed that there is a significant difference between availability and utilization of instructional materials in teaching computer science in junior secondary schools in Oshimili South LGA, Delta State. In essence, if instructional materials are not available, there will be none to utilize in the course of teaching and learning.

### **Conclusion**

Teaching with relevant instructional materials is very important, going into any class without these materials is a problem on its own. In the teaching of computer science, instructional materials perform relevant roles such as addition to the series of experience available to learners, add-on to the teacher’s voiced explanations thereby making learning experience better-off and providing the teacher with interest into an extensive variety of learning activities. Based on the findings, it therefore concluded that instructional materials are available and they are being utilized by computer science teachers.

### **Recommendations**



Based on the findings of the study the following were the recommendations.

1. The schools should collaborate with government in order to provide (more efficient and effective) instructional materials for teachers and also teachers should be sent on training to learn how to use these tools
2. Knowing the importance of instructional materials, teachers should endeavor to utilize the available instructional materials in the course of teaching. They should also improvise or ask the students to build when not available.
3. School heads should supervise their teachers more closely to ensure that the available instructional materials are effectively utilized.
4. School authority should ensure that Students and teachers are assigned school based email to enable standard use of Teams software as an instructional material.

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