IMPROVISATION OF INSTRUCTIONAL MATERIALS FOR EFFECTIVE TEACHING AND LEARNING OF COMPUTER IN JUNIOR SECONDARY SCHOOLS IN BENIN METROPOLIS.

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A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND CURRICULUM STUDIES, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF B.SC (ED) DEGREE IN COMPUTER SCIENCE

CERTIFICATION

The undersigned certify that this project work was carried out by **ABOH KELECHI JUNIOR** and has been read and approved as meeting the requirement of the department of educational psychology and curriculum studies, faculty of education, University of Benin for the award of B.SC (ED) degree in computer science.

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DEDICATION

This project is dedicated to God Almighty for his love, grace and gift of life. Also to my beloved parents Mr. & Mrs. Emmanuel Aboh, my brothers and sister who through their moral, financial support and prayers have made my academic career a success.

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ABSTRACT

This study was designed to determine the extent to which we can substitute our local cheap material resources to supplement the available teaching materials or equipment in the teaching of computer in junior secondary schools.

This study was an attempt to carry out a survey on the improvisation of instructional materials for effective teaching and learning of computer in junior secondary schools in Benin metropolis. This is basically a descriptive study.

Three (3) research questions were raised. The research design for the study was a survey design. A sample of twenty (20) computer teachers from four(4) private junior secondary schools and three(3) public junior secondary schools were randomly selected in Oredo local government area of Edo state. The instrument used for data collection was the structured questionnaire. The instrument was validated by two (2) lecturers of the faculty of Education and the project supervisor. The data collected were analyzed using simple percentage.

The study revealed that computer teachers do not improvise instructional materials and also, that improvisation of teaching materials could enhance teaching methods in computer science. Based on the findings it was recommended that there should be seminars and workshop organized from time to time and should be made compulsory for computer science teachers to attend to teach them on the act and importance of improvisation. Besides the workload of computer science teachers should be reduced this would give the teachers more time for the collection and provision of computer instructional materials.

CHAPTER ONE

INTRODUCTION

Background to the Study

This age is popularly known as technological age in which computer is most widely used. Computer has been found useful in many areas of knowledge like communication, banking, engineering, commerce, space exploration and even education is not left out. This state of revolution in the society emphasizes the production, storage and distribution of information in various forms (Akume 1997). Owolabi (2001) noted that the coming of computer is a great achievement which makes people of all endeavor of life work with ease. The prime advantage of the computer is that it can be used at any place by anybody.

In Benin metropolis of Edo State, computer education is a welcomed development where by the teaching of computer is being administered to all students regardless of the class they belong to. But the problems faced here is the lack of necessary requirements needed for effective teaching and learning of computer. This requirement includes computer laboratories and libraries, enough computer system, electricity supply and instructional materials for computer education.

A good understanding of the concept of education is derived from two approaches categorized as the broad sense and strict sense. Education in the broad sense embraces all those experiences of the individual through which knowledge is acquired. In the strict sense, the term education is brought about to designed the consciously planned and systematically applied training carried on through the various social agencies especially the school system.

Computer education was introduced into Nigerian education system in the late 1980s based on the recommendation of the 32nd ministerial council meeting of the National Council on Education in 1987. The pilot scheme for the program was started with the Federal Government Colleges (FGC) or Unity Schools and the armed forces Secondary Schools in 1988. The Computer systems were introduced into the Federal Unity Schools throughout the Federation in 1989. The National Policy on Education (2004) gave prominence to Computer Education. It was made a pre-vocational and vocational elective at both the Junior and senior Secondary levels this was clearly stated under section 5 (30) of the FRN 2004 that "Government shall provide necessary infrastructure and training of the integration of information communication Technology (ICT) in the school system in recognition of the role of ICT in advancing knowledge and skills in the modern world".

The general objectives of the National Computer Policy (1988) include:

1. Bringing about a computer literate Society in Nigeria by the Mid-1990s
2. Enabling present school children to appreciate and use computer in various aspect of life and in future employment.

The best approach to the effective study of computer depends on the extent of the practical aspect of teaching computer. This aspect has to do with teaching computer. This aspect has to do with the availability of computer system and their accessories.

According to Igwe (2003), instructional materials are those materials that are being, used by teachers to facilitate teaching and learning process. Some of these instructional materials are print and non-print materials.

Print Materials are some of the oldest media in education, this category of instructional material are useful for informational or motivational purpose. They are used to convey verbal information through print; typical example is a text book.Non-print materials are used to present instructional content, they convey meaning without the use of printed text. It includes pictures and posters symphonies and the use of computer.

Many factors make the call for improvisation of instructional materials in computer education. One of these is the persistent poor funding of the education sector. There is inadequate computer and its accessories in educational institutions at all levels in the country.

Improvisation in science refers to the act of using alternative materials and resources to facilitate instruction whenever there is lack or shortage of some specific first hand teaching and learning process easier for the teacher and students. This is because student learn best when the subject matter is brought practically to their senses.

Basically, the computer system is made up of two main components namely hard ware components and software components and basic computer accessories.

Statement of the Problem

During my teaching practice in Edo Boys Secondary School, Adolor in Edo State. I observed that their classrooms for the Junior Secondary Classes are highly populated with sixty-four students. Moreso, one (1) computer system was provided by the school to undergo the teaching and learning process of computer education.

Consequently, students performance in their previous years exams was very poor. This is as a result of inadequate availability of Computer and its accessories.

The teaching task 1 experienced there was a tedious and enormous one because I ensured that each of the student experienced the computer in order for the specific objective. To be achieved which made me to use more than the required time to teach the students.

Thus; it is the experience of this problems stated above that prompted me into this research improvisation of instructional material for effective teaching and learning of computer in Junior Secondary School in Benin Metropolis.

Research Questions

The following research questions are raised to guide the study:

i. Do computer teachers improvise instructional materials in teaching computer?

ii. Are improvised materials used in teaching computer in your school?

iii. Can improvisation of teaching materials enhance teaching methods in computer?

Purpose of the Study

The purpose of this study is to assess the presence of instructional materials for effective teaching and learning of computer in Junior Secondary Schools in Benin Metropolis.

Specifically, the research is designed to;

i. Determine the improvisation of hardware components of the computer in Junior Secondary School in Benin Metropolis.

ii. Determine the improvisation of software components of the computer in Junior Secondary Schools in Benin metropolis.

iii. Determine the improvisation of basic computer accessories in Junior Secondary Schools in Benin metropolis.

Significance of the Study

It is hoped that the findings of this research will be beneficial to the Edo State Government, the teachers, the Curriculum Planners, the students and parents.

The findings of this research will be useful to the teachers to know the component of the computer that can be improvised and the importance of improvising them for effective teaching and learning of computer this act of improvisation of both the hardware and software components of computer will and in awaken their interest and stimulate students performances in their study.

The findings of this research will be useful to the Edo State government by way of getting results from their investment in Education. It will help the government to realize the importance and need to improvise instructional material to improve the teaching and learning of computer education Junior Secondary Schools.

More so, the parents and sponsors will benefit because their children when they are effectively taught through improvisation of instructional material, this act of improvisation will make their children prosper and succeed in their computer study. Thereby reducing the financial wastage on their parents and sponsors.

Scope and Delimitation of the study

The research focuses on the extent on improvisation of instructional material for effective teaching and learning of computer in Junior Secondary Schools in Benin Metropolis.

Benin metropolis is an important city comprising of people of different ethnic background, Religion coming together to make a mark.Benin metropolis is made up of different local government area which are IkpobaOkha, Egor, Ovia North East, Ovia Szouth West, Oredo and Orhionwon. Oredo Local Government area is choosing as a case study.The study is designed to cover the personnel and staff of Junior Secondary Schools in Benin Metropolis using Oredo Local Government Area as a Case Study.

Operational definition of Terms

Software Component: A step-by-step instruction given to a computer to perform a specific task.

Hardware Component: It refers to the physical part of the computer that can be seen and touched.

Computer Accessories: are other equipment attached to the computer system.

Metropolis: The capital city of a state or country.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this section, a review of related literature on the improvisation of instructional materials for effective teaching and learning of computer will be presented under the following sub-headings.

1. What are instructional materials
2. Availability of instructional materials
3. Improvisation of instructional materials
4. Importance of improvisation of instructional materials
5. Problems of improvisation of instructional materials.
6. Guiding principles to be observed for the improvisation of instructional materials.
7. Materials for improvisation.
8. Teaching and learning of computer.
9. Summary.

What Are Instructional Materials?

Instructional materials are educational resources used to improve students' knowledge, abilities and skills, to monitor their assimilation of information and to contribute to their overall development and upbringing. It can also be said that instructional materials are important catalysts of social re-engineering and change in learners. Effective instruction cannot be fully accomplished without the use of

instructional materials. The reason for this cannot be farfetched: they include advances in technology which ushered in instructional materials especially the projected materials that are the most radical tools of globalization and social development.

There are three basic types of instructional materials: concrete objects, including objects from the world of nature of sensation of concrete objects and phenomena and description of such objects and phenomena by means of the signs, words and sentences of natural and artificial language. These types of instructional materials include such objects and phenomena as minerals, rocks, raw materials, and plants and finished manufactured articles, and plant and animal specimens.

The second types of instructional materials are those of representation of actual objects and phenomena; include three dimensional materials (globes, casting), two dimensional materials (charts, pictures) and audio visual materials (motion pictures, slides and sequences).

The third type of instructional materials are that of written description, includes scientific scholarly references and methodical teaching aids as well as text books, books of problems and exercise, books for recording scientific observations, laboratory manuals and programmed textbooks.

Instructional materials are made to comply with functional, biotechnological, aesthetic, economic, society and hygienic requirement. The concepts of teaching aids have gone beyond simple aids, instructional technology and media to communication and educational technology .Instructional materials includes those objects that are commercially required or improvised by the teachers to make conceptual abstraction more concrete and practical to the learners. Hence the

relevant materials utilized by the teacher during the instructional process for the purpose of making the contents of the instruction more practical and less vague.

Orakwe (2000), asserts that instructional materials are gradually finding their way into the classroom where modern and versatile teachers are exploiting new ways of transferring learning to the younger generation through the use of prints visuals and audios or the various combination of these trios which make up all we have in instructional media. Thus, instructional media are the information dissemination devices used in the classroom for easy transfer of learning.

Instructional resources help to concretize the learning process. Hoban and Zizzman (2006) assert that the value of audio visual materials is a function of their claque of realism. Words only convey little or no concreteness in teaching – learning process. In effect, the type of instructional materials used depends on what the tutor wants to demonstrate. Hence, instructional materials make learning more interesting, more real and lively.

Availability of Instructional Materials

Instructional design calls for a thorough pre-planning. It involves preparing a blueprint of instructional development and delivery, utilizing multimedia, multi-disciplinary approaches which the objectives of improving the teaching and learning process on the onehand and enhancing potential effectiveness of computer education as a system on the other, striking a balance possibilities and realities.

Instructional materials are invaluable for enrichment purposes in teaching and learning situation. Good performance of the subject is ensured as a result of its utilization. This is the reason why foreign educators and in recent times Nigerian educators advocated for their use in teaching learning process. Despite this,

instructional materials in teaching are often neglected in the teaching of science subjects.

Availability of instructional materials boosts learning and enhances efficiency in the act of teaching or transmitting knowledge. However, availability of instructional resources does not guarantee their utilization. Many scholars have stressed the need for instructional materials to be available if educational objectives can be achieved.

Nworgu (2003), assertS that there could be no effective transmission of instruction without instructional resources, similarly, Robert (1999) assumes that instructional materials are prerequisite for effective teaching and learning:so, Agupusi (2003) attributes non-achievement of educational objective to unavailability of instructional materials and postulated.

That stakeholder in education should collectively ensure availability of learning especially teacher training institutions. Availability of institutional materials according to the works cured seems to be an indispensable parameter for achieving educational objectives.

Improvisation of Instructional Materials

Improvisation is an act of using alternative materials locally made by the teacher, students or educational agency in a state of emergency as a substitute and supplement to standard equipment (Ogeh, 2007).According to Website Dictionary (2004), improvisation is to provide, select or make substitute for something not available to use as the basis of free invention. The realization of educational goals can be impeded by no availability of computer equipment that can ensure effective teaching and learning. Iwuozor (2000), observed that the teaching and learning materials that are not available but could be improvised are not property used.

From observation, students enjoy studying science, they enjoy detecting relationship and their interest and pleasure can be confidently aroused through common life activities. It is usually encouraging and helpful that students should begin their work on a topic with concrete experience, with common things which they can have and are familiar with and in the process try to discover some of the characteristic and relationship of one objects to another,thus brings about a good experience.

Apart from getting resource from the environments home, neighborhood and mechanically and related workshops, items for improvisation can be purchased from the local market at considerably cheap rates to made up for the real items that can be bought from scientific supply companies at very exorbitant prices.

Important of Improvisation of Instructional Materials

Improvisation serves the following purpose in the educational system.

1. Reduces the money spent on the purchase of equipment in educational institution

2. Ensures the realization of lesson objectives.
3. Helps in solving the problem of lack of equipment in educational institutions.
4. Gives room for the use of cheap local materials as alternative to the expensive foreign ones.
5. Gives rooms for a teacher to demonstrate the creative skill.
6. Encourage students towards the development or creative abilities.
7. Strengthen enquiry, discovery and investigate method in science.
8. It provides a frame of reference on which students can key their attention during classroom activities.
9. Enables teachers to think of cheaper, better and faster method of making teaching learning process easier for students.
10. Afford students the opportunity of becoming familiar with resources in the environment.
11. Creates good environment by increasing student teacher report in the course of studying.
12. Helps the teacher to study child's psychology since it helps to examine the psychomotor domain of the individual child in the area of practical skills.

Problems of Improvisation of Instructional Materials

Improvisation help in forcing students to think critically about the scientific concepts that there are many obstacle associated with the use of improvised materials.Balogun (1982) explained the two militating factors of improvisation as technical and human factors.

Low degree of accuracy and provision affect some improvised materials that are termed “technical factors” accuracy and provision play a prominent role in science experiment otherwise much error recorded during practical work will render the finding important, useless and unacceptable.

Omosewo (2008) and Akinsola (2000) consider the human factors as the teachers professional commitment, creativity, mechanical skills, initiative and resourcefulness. They found that many of Nigerian science teachers were aware of possibility of improvisation but many exhibited poor attitudes towards improvisation, while majority depends on imported equipments and claim that improvisation is time consuming and fund depleting. The author also noted that students too possessed little or no interest in improvisation.Yoloye (2001) noted that improvisation whether they cost less than standardized manufactured ones or not, they cost money. He added that money is usually not readily available for teachers.

Guiding Principles to Be Observed For the Improvisation of Instructional Materials

Before one embarks on any form of improvisation, there are certain guiding principles that should be observed, which will help assess the relative work of the improvised materials from the view point of mathematics teaching.

1. Instructional task: The behavioural objectives, content learning activities and evaluating instructional should be taken into consideration by the teacher in

the selection and development of teaching aids. This will determine the level of sophistication necessary in the improvisation. This will also decide exactly what is to be improvised.

2. Entry behavior: this will provide an insight into whether the improvised form of an instructional materials would help the student to understand what is been taught.

3. Target audience attribute: these include the learner's features, level of understanding, age, physical skills, learners experiences and socio-economic background.

4. The durability of the improvised materials: it is much more advisable to spend more money on instructional materials that would be used for a number of years than on a similar teaching and which would last for only a few weeks. Suffice it to say that on a long term basis a durable improvisation not only reduces cost but also save time and labor.

5. Environmental factors: This consists of available educational infrastructure and educational community such as people equipped library, laboratories, workshops, electricity and personal.

6. The cost benefit: it will be a waste of time and money to embark on improvisation of particular equipment if there are already factory. Made equivalent available for immediate use.

7. Dynamic variable: this include the size of the target audience, the classroom social climate, sitting, viewing and listening arrangement, available time space, teachers competence and the desired level of learner's response and

participation are to be seriously considered in the decision, selection and development.

Generally, the following principles should guide the selection of any improvisation:

1. Aptness and appropriateness: the media should be relevant to the topic and events it intends to enhance. It should also be relevant to the age of the pupils and the circumstances of use.
2. Cost effectiveness: it should be affordable and economical.
3. Clarity: it must not create doubts about what it set out to impress on the learners. It must present information clearly.
4. Accuracy/Authenticity: it must be accurate and authentic.
5. Appeal: it should capture and sensitize the interest and the attention of the children and stimulate them to learn.
6. Availability: it should be easily obtainable whenever it is needed.
7. Application/Operation: it should be easy to operate.

Improvisation calls for ingenuity, sound knowledge of the subject matter, professional commitment and imaginative ability on the parts of the teacher. However, no matter the intelligence, motivation and ingenuity the science teachers many possess, he needs certain basic skills tools and materials.

Above all, improvisation demands creativity resourcefulness, curiosity, adventure, perseverance, observation and measurement skills on the part of the teacher and students.

Materials for Improvisation

Local materials can be used in making teaching aids in computer education and the materials can be gotten from the immediate environment of the teacher, more so, they are not too expensive. Some of the materials includes: cardboard paper, cartoon, plywood, projector, chalkboard, etc. Most of the raw materials for improvisation can easily be obtained from the home, hardware shops, offices and locality, the school laboratory (Anon, punch newspaper, 20th June, 2011).

The type of instructional materials to be constructed depends on the purpose of the lesson. It also depends on the part of aids required. As much as possible students should be involved in the construction of instructional materials to be used in teaching computer concepts. This is strongly suggested because while the students are taking part in the construction, they may discover the idea behind it.

Table 1: Lists of Some Materials That Can Be Improvised

ITEMS	RESOURCES
Charts	Can be made by drawing on a cardboard sheet or on the chalkboard with the aid of using pencil or marker.
Keyboard	On screen keyboard can be used in place of this.
Monitor stand	This can be made from scraps collected from

	mechanical workshop.
Interrupted power supply	Inverter, power banks, solar panels can be used.
Monitor	A monitor can be substituted using a television with HDMI port, a project or it can be substituted using a carbon squared shaped with the face of the carbon covered with nylon material to represent the screen of the monitor.

Technical and Learning of Computer

Afolabi (2005) asserts that "apart from lack of required facilities in school, there have been some ridiculous cases of inadequate and unqualified teachers for the sciences, with the results that the students are rendered unprepared for the examination, however enthusiastic about science career, they might be. Therefore, to be effective and efficient in the teaching of computer science in our schools, computer science teachers should be qualified and experienced.

Computer can be a tutorial teaching machine able to respond to a student with difficulties and can be used under individualized guidance. However, computer cannot only compare but can also be used as a teaching aid. This is refereed too as computer Aided instruction (CAI). CAI can only be used by teachers who are able to arouse the interest of the students by showing the relevance of the subject in other disciplines. Computer teaching seems to be interesting it properly handled by efficient and effective teachers. In doing so, a lot of computer concepts can be practicalized by using CAI and computer managed instruction.

The second claim is synonymous with computer assisted learning (CAI) which is the use of compute as a learning resource where the teaching materials are stored inside the computer system. The teacher controls overall environment in which the students learn. Such system will enable him select, specify, design and even write computer based learning and activities (Kenneth Tact 2004). Igandan (2000) is of the opinion that we are living in the age of automatium and the application of the automated technology which is a challenge to our society and many profound implications. He asserts that computer is an essential tool for today's society irrespective of one's life style. Hence, formal computer science education should be as comprehensive as possible, both broad and deep and include the history of the field along with specific curricula.

Although symposia are important events, many teachers are not attending and is still a need for local ongoing curriculum – centered teachers learning (Stephenson, 2002).To fulfill this need, states must make funded commitments and give released time to promote mandatory teachers participation for ongoing professional development and attendance at educational state and national conferences(Stephenson,2003).Okwudishu(2005) discourses that the unavailability of some ICT components in schools hampers teachers use of ICTS. Lack of adequate search skills and of access the use of the internet by secondary school teachers (Kauku, 2005).

Afolabi Toye (2005) persists that deplorable conditions of science laboratories secondary schools have denied the students the opportunity of assessing the validity of their theoretical knowledge. He noted that it is common knowledge that many secondary schools, which offer science subject cannot in fact boast of any laboratory.

Summary of Review of Literature

From the review carried out, some issues related to computer education were discussed, we understand how improvisation has been described by many authors is the inventing of new materials, or the modifying of already existing ones for the purpose of carrying out instruction. Improvisation has been noted to have some desirable qualities like; improving the lesson's effectiveness and substituting the standardized ones that are not available.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter discusses the research methodology and design of the study under the following sub-headings.

- Design of the study
- Population of the study
- Sample and sampling of procedure
- Instrument for data collection
- Validity of instrument
- Method of data collection
- Method of data Analysis

Research Design

The research design used for this study is the survey research design. The choice of this design is because it focuses on the incidence, distribution and psychological variables.

Population of Study

Population of study refers to the totality of events, persons, objects, which set to form the subject matter of the research investigation. For the purpose of this research the population of study is made up of all computer teachers in public and private secondary schools in Benin metropolis of Edo state.

Sample and Sampling Techniques

A sample is a smaller group of elements drawn through a definite procedure from a specified population. For this research work, Oredo local government area which is part of the local government in Benin metropolis of Edo state is selected. The simple random sampling technique was used. So, each member of the sample size will have an equal chance of being chosen. The sample consists of three (3) public junior secondary schools and four (4) private junior secondary schools. These schools were randomly selected.

Instrument for data collection

For the purpose of data collection in this study, structured questionnaire was used. The questionnaire was structured into two (2) sections. Section A contains three (3) items, two (2) on the teachers' personal data and one (1) on the type of school. Section B sought information about the improvisation of instructional materials by teachers. Finally, a total of twenty (20) copies of questionnaire were used for the study.

Validity of Instrument

Validity is the degree to which a test measure what it is supposed to measure. To validate the instrument, a copy was presented to Mrs Osarumwense and Mr Ugonoh of the faculty of Education uniben for validation, and the validated copy was presented to the project supervisor to determine the appropriateness or otherwise of the instrument. Useful suggestions offered by the supervisor were taken into consideration and incorporated into the questionnaire. He also ascertained both the face and content validity of the questionnaire.

Reliability of the Instrument

Reliability is concern with the consistency with which a test measures what it sets out to measure. The reliability of the instrument was determined using the test-retest method. A reliability coefficient of 0.712 was obtained using the Pearson moment correlation co-efficient.

Method of Data Collection

With permission from the principals of the schools selected and with the assistance of the head of department of computer of the secondary schools, the questionnaire was administered to the computer teachers.

Method of Data Analysis

The simple percentage calculated was used to answer the research questions. This is to convey information at a glance to make for easy understanding.

CHAPTER FOUR

Data Analysis and Discussion of Results

This chapter deals with the analysis, interpretation and discussion of findings of the data collected from the instrument.

The data collected were analyzed using simple percentage method. A total of 20 copies of questionnaires were administered to computer teachers from seven (7) secondary schools to collect information on improvisation of instructional materials for effective teaching and learning of computer in junior secondary schools in Oredo local government area of Edo state.

Research Question 1: Do computer teachers improvise instructional materials in teaching computer?

In answering this question, questionnaire items 1, 2 and 3 were used.

Table 1: Analysis of teacher's use of improvised instructional materials in teaching computer.

S/N	ITEMS	YES (%)	NO (%)	TOTAL
1.	Do computer teachers have confidence in themselves with teaching without the use of instructional materials?	12 (60%)	8 (40%)	20
2.	Are computer teachers still conversant with the standard instructional materials?	7 (35%)	13 (65%)	20
3.	Are computer teachers able to teach every topic with ease without the use of instructional materials?	8 (40%)	12 (60%)	20
	Total	27 (45%)	33 (55%)	60

The table 1 above shows the extent to which computer teachers use improvised instructional materials in teaching computer. For item 1 which states computer teachers have more confidence in themselves in teaching without the use of instructional materials, 60% of the respondents responded positively while the remaining 40% responded negatively.

For item 2 which states are computer teachers still conversant with the standardized instructional materials, 35% of the respondents responded positively while the remaining negatively.

For item 3 which states are computer teachers able to teach every topic with ease without the use of instructional materials, 40% of the respondents responded positively while the remaining 60% responded negatively.

Research Question 2: Are improvised materials used in teaching computer in your school?

In answering this question, questionnaire items 4,5,6,7 and 8 were used.

Table 2: Analysis of improvised materials used in teachings computer science.

S/N	**Items**	Yes (%)	No (%)	Total
4	Do computer teachers use improvised instructional materials at all?	11 (55%)	9 (45%)	20
5	Does the use of improvised materials make your job interesting as a computer teacher?	16 (80%)	4 (20%)	20
6	Do you involve the students in improvising?	7 (35%)	13 (65%)	20
7	Do your students possess interest in improvising instructional materials for computer learning?	9 (45%)	11 (55%)	20
8	Do you have poor attitude towards improvisation?	18 (90%)	2 (10%)	20
	Total	61 (61%)	39 (39%)	100

The table 2 above shows the improvised materials used in teaching computer science. For item 4 which states do computer teachers use improvised instructional materials at all, 55% of the respondents responded negatively.

For item 5 which states does the use of improvised materials make your job interesting as a computer teacher, 80% of the respondents responded positively while the remaining 20% of the respondents responded negatively.

For items 6 which state do you involve the students in improvising, 35% of the respondents responded positively while the remaining 65% of the respondents responded negatively.

For item 7 which states do your students possess interest in improvising instructional materials for computer learning, 45% of the respondents responded positively while the remaining 55% of the respondents responded negatively.

For item 8 which states do you have poor attitude towards improvisation, 90% of the respondents responded positively while the remaining 10% of the respondents responded negatively.

Research Question 3: can improvisation of teaching materials enhances teaching methods in computer?

In answering this question, questionnaire items, 9, 10, 11, 12 and 13 were used.

Table 3: Analysis of the extent to which improvisation of teaching materials enhances teaching methods.

S/N	ITEMS	YES %	NO %	TOTAL
9	Does the computer teachers use of improvised materials lead to the ignorance of the standardised ones?	5 (25%)	15 (75%)	20
10	Do the improvised materials determine the teaching method the teacher would use?	17 (85%)	3 (15%)	20
11	Does the use of improvised teaching materials make students lose cognizance of the standardized ones?	12 (60%)	8 (40%)	20
12	Does the use of improvised materials make computer teachers research more?	16 (80%)	4 (20%)	20
13	Does the use of improvised materials produce better results than standardized ones?	9 (45%)	11 (55%)	20
	Total	59 (59%)	41 (41%)	100

The above table shows the extent to which improvisation of teaching materials can enhance teaching methods in computer science.

For item 9: Does the computer teachers use of improvised materials lead to the ignorance of the standardized ones, 25% of the respondents responded positively while the remaining 75% responded negatively.

For item 10: Do the improvised material determine the teaching method the teacher would use, 85% 0f the respondents responded positively while 15% responded negatively.

For item 11: Does the use of improvised teaching materials make students lose cognizance of the standardized ones, to this question 60% of the respondents affirmed to it while the remaining 40% did not.

For item 12: Does the use of improvised materials make computer teachers research more, to this question 80% of the respondents responded positively while 20% responded negatively.

For item 13: Does the use of improvised materials produce better results than standardized ones, 45% of the respondents responded positively to this question while 55% responded negatively.

Discussion of Findings

From the analysis of the data presented in tables 1 to 3 above, the following findings were revealed.

For research question one (1) which sought to find out whether computer teachers improvise instructional materials in teaching computer in junior secondary school in Oredo local government area of Edo state. The findings revealed that computer teachers in junior secondary schools in Oredo local government area of Edo state do not improvise instructional materials in teaching computer in most cases. This is so as the result got from the analysis has 55% negative response of the total respondent. This finding is similar to those of Omosewo (2008) and Akinsola (2000), who found that many of Nigerian science teachers were aware of possibility of improvisation but many exhibited poor attitudes towards improvisation, while majority depends on imported equipments and claim that improvisation is time consuming and fund depleting. A major problem militating against improvisation of computer instructional materials is due to teachers' inexperience, incompetence and non-flexibility which is similar to the finding of

Afolabi (2005), asserts that apart from lack of required facilities in school, there have been some ridiculous cases of inadequate and unqualified teachers for the sciences.

For research question two (2) which sought to find out the extent to which improvised materials are being used by computer teachers in teaching computer in junior secondary schools in Oredo local government area of Edo state, the findings revealed that computer teachers make use of adequate improvised instructional materials in teaching computer. This is because the result obtained from the analysis has 61% positive response of the total respondents. The study finds most computer teachers are interested in improvisation of teaching aids in the teaching of computer and they do improvise frequently .In this regard the improvisation of computer instructional materials makes the class interesting.

For research question three (3) which sought to find out the extent to which the improvisation of teaching materials can enhance teaching methods in computer science in junior secondary schools in Oredo local government area of Edo state and from the findings of the analysis. It shows that improvisation of teaching materials enhance teaching methods in computer science. It gives computer teachers a variety of teaching method to use. This is in agreement with the study carried out by Hoban and Zizzman (2006) that the type of teaching method used depends on the instructional materials improvised by the teacher.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study set out to examine the improvisation of instructional materials for effective teaching and learning of computer in junior secondary schools in Benin metropolis.

In order to achieve the aim of the study, three (3) research questions were raised and they are:

i. Do computer teachers improvise instructional materials in teaching computer?
ii. Are improvised materials used in teaching computer in your school?
iii. Can improvisation of teaching materials enhance teaching methods in computer?

Teacher questionnaire was used as instrument of the study. The questionnaire was administered to twenty (20) computer science teachers in seven junior secondary schools randomly selected in Oredo local government area of Edo state.

Data gathered from the questionnaire were analysed using simple percentage method. The results obtained from the analysis revealed the following:

i. That, computer teachers in junior secondary schools in Oredo local government area of Edo state do not improvise instructional material in teaching computer to a large extent.
ii. That, computer teachers make use of adequate improvise instructional materials in teaching computer to a large extent.

iii. That, improvisation of teaching materials enhance teaching methods in computer in Oredo local government area of Edo state.

Conclusion

On the basis of the analysis, discussion and the finding offered above, the following conclusion was drawn.

i. Improvisations of computer teaching materials enhance the teaching and learning of computer. Thus, teachers should improvise instructional materials in teaching computer.
ii. Computer teachers in Oredo local government area of Edo state do not make use of adequate improvised instructional materials in teaching computer.
iii. Improvisation of teaching materials in computer can arouse students' interest and as such will lead to high level of knowledge, understanding and performance among the students.

RECOMMENDATIONS

Based on the findings of this study it was recommended that:

i. Governments, philanthropists and the PTA should contribute financially to the promotion of improvisation of teaching materials in junior secondary schools in Oredo local government area of Edo state.
ii. Seminars and workshop should be organized from time to time and should be made compulsory for teachers to attend to update them on the act and importance of improvisation.
iii. The workload of computer teachers should be reduced, this gives the teachers more time for the collection and provision of computer instructional materials.
iv. All computer teachers in junior secondary schools should be encouraged to enroll as members of the science teachers Association of Nigeria (STAN), so that they could keep abreast of new developments in science context, teaching strategies, evaluation etc.
v. Source books on improvisation in science should be supplied to all junior secondary schools.

Suggestion for Further Studies

The findings of this study have identified the following for further research in computer education.

- This same study should be carried out nationwide, so as to have a wider view of the study.
- An evaluation of computer teaching methods.

- A survey of the facilities needed for the teaching of computer in junior secondary schools.
- An assessment of the current state of computer education

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