INFORMATION AND COMMUNICATION TECHNOLOGY AND INSTRUCTIONAL DELIVERY OF BUSINESS STUDIES IN JUNIOR SECONDARY SCHOOLS IN RIVERS STATE, NIGERIA

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Abstract

This study was motivated by the frequently observed negligence of the use of Information and Communication Technology facilities as an instructional material for Business Studies in secondary schools in Rivers State. The researcher adopted descriptive survey design. Four research questions and four null hypotheses guided the study. Two sets of structured questionnaire formed the research instrument. The questionnaire were administered to the 42teachers and389 students drawn from the target population. The research questions were analyzed with mean and standard deviation, while the hypotheses were tested with t-test statistics. The results revealed that information and communication technology facilities were not available for the instructional delivery of Business Studies in junior secondary schools in Rivers State, ICT facilities were not utilized in the instructional delivery of junior secondary Business Studies in Rivers State, ICT facilities were not adequate for instructional delivery of Business Studies in Rivers State and that ICT facilities were not accessible for the instructional delivery of Business Studies in Rivers State. Conclusion drawn from the study was that the authorities concerned for public secondary education, irrespective of its size, have a duty to ensure that ICT facilities are made available and adequately utilized and accessible by teachers and students in junior secondary schools in Rivers State for instructional delivery. Based on the findings the researcher recommended that ICT facilities should be included in the secondary school curriculum as Business Studies instructional material, and also be made available, adequate and compulsory application in the instructional delivery of Business Studies in secondary schools in Rivers State.

Keywords: Information And Communication Technology, Business Education, And Instructional Delivery

Introduction

Information and Communication Technology (ICT) has been widely acknowledged across the globe as a vital tool for the development and enhancement of business and other organizational processes. The accessibility and effective utilization of ICT has contributed immensely to easy access to knowledge and information that would otherwise be difficult to obtain by individuals and organizations in today's fast paced and highly dynamic environment. The change from teacher-centred education system to learner-centred education system in the past years, contributes to the use of ICT in education. In the changing world, basic

education is essential for an individual being able to access and apply information and such ability one must find include ICT in the global village. Information Communication Technology (ICT) is defined by the Information Technology Association of America (ITAA, 2002) as the study, design to support the management of computer-based information systems with the use of software applications and computer hardware. Information and Communication Technology (ICT) deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and securely retrieve information.

Information and Communication Technology (ICT), is an electronic-based technology that is generally used to generate, process, store, retrieve, disseminate and package information as well as provide access to knowledge. The development of microcomputers, optical disc, the telecommunication network, television, internet, etc., has assisted in broadening people's knowledge and facilitating effective communication. Ugwu and Oboegbulem (2011) stated that:

> ICT in education encompasses a great range of rapidly evolving technologies such as desktops, notebooks, digital camera, local area network (LAN), the internet and the World Wide Web (WWW), CD Rom and DVDs and applications spread sheets, tutorials, simulations, electronic mails, digital libraries, computer mediated conferencing, video conferencing and virtual reality (p;11).

Hence, ICT can be explained at all levels and in all forms of education. Educators, teachers and instructors are discovering that instructional delivery process is improved in ICT environment. Moreover, learners are faced with the challenges of coping with the potential of the ICT era. The introduction of computers which is the major and most influential technology of the millennium has however, made impart of technology greatly felt in every sector of economy and including that of the educational sector. In response to this, according to National Committee on Education (1988), the Federal Government of Nigeria launched the National Policy on computer literacy in 1988 at the primary, secondary and tertiary levels of education

The new policy seems not to have been properly implemented to affect the teaching and learning of Business Studies in secondary schools in Rivers State.

Business Studies is a subject that teaches students to acquire skills and competencies in business either for further education or for the world of work. It is grouped as a pre-vocational elective and the emphasis is in practical state. Business Studies are courses that require “hands on” and “minds on” activities. Business Studies are learnt by practice, critical thinking, manipulation, and creativity. Due to the systems of learning Business Studies, Information and Communication Technology (ICT) facilities are needed to enhance effective instructional delivery in the school system, though not recognized in the Business Studies curriculum.

Instructional delivery is all about communication between the teacher and the learner or between the learner and the learning resources which involves giving and receiving information. Means of conveying ideas or subject content to learners are of great prominence (Nwachukwu, 2013). Since the evolution of Information and

Communication Technologies (ICTs), giving and receiving information have not remained the same. Technology has changed the face of almost every field of human endeavor, and the secondary school as an educational system is not an exception. The role of technology in teaching and learning is speedily becoming one of the most discussed issues in modern educational policies. Most experts like Refell and Whitworth, (2002) in the field of educational technology show that when technology is properly used, teaching and learning are enhanced (Nwosu, 2008). Instructional delivery yield result that is needed or intended when the learner is able to demonstrate behavior that reflects the objectives of the instructional programme. It is when this happens that we can say that teaching and learning is have produced desired result, and this can only take place where the learning environment is supportive through the available and use of ICT facilities.

Availability of ICT facilities such as computer, projector, internet, e-mail, World Wide Web and audio CD etc., for teaching and learning business studies is a necessity. This is because the knowledge and skills acquired are expected to prepare the learners to acquire basic practical knowledge required to function well in the society or progress successfully in their education. ICTs availability allows for increased individualization of learning. In schools where new technologies are available and used, students have access to tools that adjust to their attention and provide valuable and immediate feedback for literacy enhancement (Emuku & Emuku, 2010). More so, the classroom is expected to prepare students for the office through adequate, practically oriented training with the use of various ICT facilities as instructional materials, not a situation where ten students will face a computer. Consequently, this research work takes a look at information and communication technology (ICTs) and instructional delivery of Business Studies in Rivers State.

Conceptual Framework

Information and communication Technologies (ICT) is the use of all digital technologies to convey information to individuals, businesses and organizations. It comprises of any tool that can store, retrieve, manipulate, transmit or receive information electronically in a digital form and the ways these different uses can work with each other. Such tool includes personal computer, digital television, e-mail, robots, cameras, projectors etc.

According to Daniels (2007) ICT have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. However, there appears to be a misconception that ICT generally refers to computers and computing related activities'. This is fortunately not the cases, although computer and their application play a significant role in modern information and/or systems also comprise of the phenomenon that is commonly regarded as ICT. Pelgrum and law (2009) state that near the end of the 1980s, the term computers' was replaced by 1T' (Information technology) signifying a shift of focus from computing technology to the capacity to store and retrieve information. This was followed by the introduction of information and communication technology in 1992, when e-mail started to become available

to the general public Pelgrum and Law (2009). According to United Nations report (2006) ICT covers Internet services, provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities. According to UNESCO (2004) information and communication technology (ICT) may be regarded as the combination of informatics technology' with other related technology, specifically communication technology. There are various kinds of 1CT products available and having relevance to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc, have been used in education for different purposes (Bhattacharya & Sharma, 2007).The field of education has been affected by ICT, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006)

Computer-Based Education (CBE) And Computer-Based Instruction (CBI), are the broadest terms and can refer to virtually any kind of computer use in educational settings, including drill and practice, tutorials, simulations, instructional management, supplementary exercises, programming, database development, writing using word processors, and other applications. These terms may refer either to standalone computer learning activities or to computer activities which reinforce material introduced and taught by teachers.Computer-Managed Instruction (CMI): This refer to the use of either computers by school staff to organize student data and make instructional decisions or to activities in which the computer evaluates students' test performance, guides them to appropriate instructional resources, and keeps records of their progress.Computer-Assisted Instruction (CAI), is a narrower term and most often refers to drill-and-practice, tutorial, or simulation activities offered either by themselves or as supplements to traditional, teacher directed instruction using CAI as a supplement to traditional, teacher-directed instruction produces achievement effects superior to those obtained with traditional instruction alone in the teaching and learning. A well-designed and implemented D&P (drill- and-practice) or tutorial CAI, used as a supplement to traditional instruction, produces an educationally significant improvement in student academic achievement.

A cursory look at the secondary schools in Rivers State has shown that many teachers in the system still rely much on conventional or traditional “chalk and talk” method of teaching Business Studies rather than embracing the use of ICT facilities. This was as a result of ICT facilities not made available in most secondary schools in the area. According to Okebukola (2008), computer is not part of classroom technology in over 90% of public schools in Nigeria, thus the chalkboard and textbooks continue to dominate classroom activities. This is an indication that the students are still lagging behind in the trend of changes in the world. This presupposes that there is the tendency for the teachers and students to be denied the opportunities which ICT offers in the instructional

activities. Therefore, the researcher call for the need to replace the traditional pedagogical practices that still underpin the educational system in the country, hence the need to explore the various ICT facilities available and ready to use for Business Studies instructional delivery process inNigerian Secondary Schools particularly in Rivers State.

Various ICT facilities available and ready to use for instructional delivery process in schools according to Babajide and Bolaji (2003), Bryers (2009), Bandele (2006) and Ofodu (2011) include; radio, television, computers, overhead projectors, optical fibres, fax machines, CD-Rom, Internet, electronic notice board, slides, digital multimedia, video/ VCD machine and so on. It appears some of the facilities are not sufficiently provided for, if not available for the instructional delivery process in secondary schools in Rivers State. This might account for why teachers are not making use of them in their instructional process. Observation has shown that there are no functional internet facilities in most public secondary schools in Rivers State.

The unavailability of ICTs for Business Studies instructional delivery have generated serious concern, and had hampered the acquisition of knowledge and skills expected to prepare the learner for the world of work (Azih, 2011). Learning practical work would be meaningless without the use of teaching resources and students would grope in darkness for long before they could get a grasp of what the teacher would be teaching (Azih, 2011). This implies that, the ability to use computer effectively has become an essential part of everyone's education.Many teachers find chalkboards to be almost a thing of the past with the advent of projectors in the classroom. Rather than writing notes across a board, teachers can make use of PowerPoint presentations, images and even film as teaching tools through the use of projectors. Consequently, teachers and students alike find projectors to be useful classroom devices.

Skills such as bookkeeping, clerical and administrative work, stock taking etc, which are essential part of Business Studies, now constitute a set of computerized practices that form the core ICTs skills packages, spreadsheet, word processors, and data bases. New instructional techniques that use ICTs provide a different modality of instruments. For the students, ICTs availability allows for increased individualization of learning. In schools where new technologies are available and used, students have access to tools that adjust to their attention and provide valuable and immediate feedback for literacy enhancement, which is currently not fully implemented in secondary school in Nigeria (Emuku & Emuku, 2010). Hence, Azih and Nwosu (2012) attributed low availability of new technologies in secondary schools to lack of access to ICT facilities.

Although there are development in the Nigeria education sector which indicate some level of ICT application. In the National Policy on Education (FRN, 2004), recognized the prominent role of ICTs in modern world, and has integrated ICT facilities in education in Nigeria. To actualize this goal the document states that government will provide basic infrastructure and training at the primary school. It is also the intention of the government to provide necessary infrastructure and training for the integration of ICT facilities in the secondary school system, this intention

is yet to be actualized. Okebukola (2007), opined that, it should be noted that 2004 was not first attempt Nigeria government made to introduce computer education in secondary schools. In 1988, Nigeria government enacted a policy on computer education. The plan was to establish pilot schools and diffuse computer education innovation first to all secondary schools, and then to primary schools. Unfortunately, the project did not really take off beyond the distribution and installation of personal computer.

It has also been observed that most public secondary schools in Rivers State, lack computer literate teachers; irregular power supply appears to thrive in the schools. Moreover, it seems the schools could not purchase computers for use because of inadequate fund. Besides, the non-inclusion of the ICT programmes in teachers' training and Business Studies curriculum,seems to be another major challenge facing the availability and adoptionof ICTs in Junior public secondary schools in Rivers State. Various studies have shown the multifaceted problems militating against the availability and effective use of ICT in Business Studies instructional delivery in public secondary schools in Rivers State.

Utilization of ICT Facilities for Instructional Delivery of Business Studies

There is no doubt that ICT such as multimedia technology, tele-collaboration, formatting tools, radio and TV broadcasting, world wide web (www) internet etc, provides productive instructional service delivery in order to increase people's creative and intellectual resources especially in today's information society. Through the simultaneous use of multimedia, formatting tools,radio and TV broadcasting, audio conferencing, computer and internet, projector, e-mail, power point, tele-conferencing, world wide web (www) etc. ICT gives ample and exceptional opportunities to the students to develop capacities for high quality learning and to increase their ability for innovation (Davis and Tearle, 2009),

Unfortunately, most teachers are yet to acquire the requisite ICT skills, and where opportunities exist for them to do so, they shun them because of the phobia they have developed over the ICT facilities. This is the reason why the researcher calls for the integration of ICT facilities in teaching and learning in junior secondary schools in Rivers State. The quality of teachers' instructional service delivery cannot be divorced from their utilization of ICTs in our institutions, which Aginam (2006) put at less than 5 percent. However, there is a ray of hope with the Federal Government introduction of Universal Mandatory Information Technology Training (UMITT) which is being embraced by universities, yet to be embraced in the secondary education.

The ICTs Usage for Business Studies Instructional Delivery

The following are some of the ICTs that are used in education and how they are used, as they vary in potentiality according to how each is used. At least five levels of technology use in education are as follow: presentation, demonstration, drill and practice, interaction, and collaboration. So in view of this, the researcher has the following to explain about ICT Usage: Multimedia Technology can be used in Junior secondary school subjects like book-keeping, home economics, drawing etc. It enhances instructional process because students learn by doing and don't forget easily what they have done. Computers can be used to teach topics like computerized accounting, spreadsheets,

internet searches and computerized filing (in Office Procedures) as well as PowerPoint.

Formatting tools: is used to edit, redraft or redraw work more easily and produce output of better appearance. Technology would overcome physical limitations associated with existing methods. It would not only facilitate students' work but also relieve the teacher of related organizational task(s). Such tasks include accessing new materials online instead of prerecording videos of news footage and many other similar encounters.

Radio and TV broadcasting: These have been used widely as educational tools since the 1920s and the 1950s, respectively. There are three general approaches to the use of radio and TV broadcasting in education such as, direct class teaching, where broadcast programming substitutes for teachers on a temporary basis; school broadcasting, where broadcast programming provides complementary teaching and learning resources not otherwise available; and General educational programming over community. The notable and best documented example of the direct class teaching approach is Interactive Radio Instruction (IRI). The radio lessons, developed around specific learning objectives at particular levels of any business subjects, are intended to improve the quality of classroom teaching and to act as a regular, structured aid to poorly trained classroom teachers in under-resourced schools.

Audio Conferencing: It involves the live (real-time) exchange of voice messages over a telephone network. When low-bandwidth text and still images such as graphs, diagrams or pictures can also be exchanged along with voice messages, then this type of conferencing is called audio graphic. Non-moving visuals are added using a computer keyboard or by drawing/writing on a graphics tablet or whiteboard. VideoConference: This allows the exchange not just of voice-and graphics but also of moving images. Video conferencing technology does not use telephone lines but either a satellite link or television network (broadcast/cable), web based conference, as the name implies, involves the transmission of text, graphic, audio and visual media via the internet; It requires the use of a computer with a browser and communication both synchronous and asynchronous. Computers and Internet: There are three general approaches to the instructional use of computers and the Internet, namely: Learning about computers and the Internet, in which technological literacy is the end goal; Learning with computers and the Internet, in which the technology facilitates learning across the curriculum; and Learning through computers and the Internet, integrating technological skills development with curriculum applications Ramsden, (2013). It is also used for doing different kind of research. Learning with the technology means focusing on how the technology can be the means to learning ends across the curriculum.

Theoretical Framework

This study was based on the cognitive theory of Jean Piaget (1966) who postulated that each individual moves through set stages of cognitive growth. Piaget envisage that the learning process occurs when the learner adopt knowledge through the processes of accommodation or assimilation. Accommodation is to modify self to fit the new material, while assimilation means to modify material to fit self. The "self" here being a method to deal with

the external world. The learner must be allowed to "Do" this way the individual will reinvent things that were taught thus, enhancing creativity. Cognition is what a person knows about something or an idea which goes through what he sees, hears, feels, reads, touches and imagine. Piaget further explained that cognition is no longer studied in light of individual working in isolation with only their minds to guide them, instead the emphasis is on individuals working with a variety of tools and people to cognitive development, which involves ICT facilities. This theory is significant to this study in the sense that, material to be learned can be organized more profitably by the teacher and presented to the learner in relatively final form..

Learner control was initially an encouragement to adopt personal control over access to learning programmes based on the belief that this would promote effective and efficient learners Reeves (1998). More recently, the emphasis appears to include the use of information and communication technology as cognitive tools where the learner is more engaged in constructivist learning and personal representations of knowledge (Johanssen and Reeves, 1996, in Ewing & Miller, 2002). Learners control has also featured in Meril's earlier Component Display Theory, both of which address the organization of a learning (or instructional) environment for the promotion of relevant cognitive structures for students learning Meril (1988). Together these ideas encourage a closer examination of the individual learner in the electronic learning environment and particular relationship between collaborative learning and electronic learning which is the basics of this study.

Similarly, Kearsley (2000) proposed an engagement theory where learners must be actively engage in relevant task for effective learning to take place. He suggests that learning, including learning computers requires collaboration among participants involvement in problem based activities and relevant realistic learning resources. The more focused writing on computer supported collaborative learning is beginning to address additional issues which include knowledge construction, social learning and the postulation of theoretical models which help in the setting up of interactive electronic environments Salomon (1991). He explored how the use of computer might support cognitive and intellectual performance through increasing the learners mental effort which also a base of this study.

Technology acceptance model (TAM) was proposed by Davis, (1989). He presented a theoretical model aiming to predict and explain ICT usage behavior that is, what causes potential adopters to accept or reject the use of Information technology. Theoretically, TAM is based on the theory of Reasoned Action (TRA). In TAM, two theoretical constructs perceived usefulness and perceive ease of use, are the fundamental determinants of system use, and predict attitude toward the use of the system, that is the users' willingness to use the system. Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use refers to "the degree to which a person believe that using a particular system would be free of effort" (Davis, 1989). This theory is relevant to the study in that it encourages a closer assessment of the individual learner in the electronic learning environment and particular relationship between collaborative learning and electronic base learning.

Finally, the study also adopted the Media Systems Dependency (MSD) Theory. The Media System Dependency Theory was first proposed by Sandra Ball – Rokeach and Ilelivin Defleur in 1976,

and consists of a complex system in which the media, individuals, their personal environment, and the social environment have dependency relationship with each other. Each component depends on the others components in a system by drawing on resource in other to satisfy goals. In another way, Media Systems Dependency Theory explains that the relationship in which the capacity of individuals to attain their goals is contingent upon the information resources of the media systems (Wikipedia, 2012). This theory is relevant to the study in the sense that it encourages a closer examination of the individual learner in the electronic learning environment and similarly promotes collaborative learning and electronic learning through the use of ICT facilities.

Empirical Review

Obi (2010) carried out a study on accessibility and usage of ICT in teaching and learning Business Studies. The study revealed that poor internet connection, broad band wireless, large class size and poor power supply is lacking in schools and it affects accessibility and use of ICT in teaching and learning Business Studies. The report of study Obi (2010) differs from the present study because the study is concentrated only on the accessibility of ICT and did not cover the usage of ICT. But the present study indicated that technological literacy is needed to be possessed by the teacher and students to enable them use ICT during teaching and learning Business Studies. The two studies are related in that they have survey design and questionnaire for data collection.

In a related study, Orji (2012) carried out a study to determine the impact of infrastructure on the use of ICT in teaching and learning Business Studies. The study revealed that there is inadequate infrastructure such as ICT facilities, equipped workshop and power supply which negatively impact on the use of ICT in teaching and learning. The researcher concluded that information enumerated above are inevitable for use of ICT in teaching and learning Business subjects in schools. This study differs from the present study in that it sought to determine the impact of infrastructure in use of ICT in teaching and learning while present study seeks to identify the degree at which ICT facilities in teaching and learning Business Studies are available and utilized in secondary schools.

In another study, Igwebuike (2007),studied integration of ICT in teaching and learning Business Subjects. The purpose of the study was to ascertain the factors affecting the integration of ICT in teaching and learning of Business Studies. The result revealed that, availability of computer, teachers ability to use ICT, inadequate funding, and having onsite technical staff are indispensible and should be provided for in the budget by the government for integration of ICT into teaching and learning. He reported that this will enhance use of ICT in teaching and learning Business Studies.This study, Igwebuike (2007), differs from the present study in that it has students and lecturers of tertiary institutions as respondents. On the contrary, the present study's respondents are secondary school students and teachers. Again the purpose of the study of the reported study sought to ascertain the factors to be considered in the integration of Business Subjects, the present study is seeking to determine degree to which these factors affects use of ICT in teaching and learning.

In another study carried by Njoku (2009), the purpose was to find out technological competence required of students and teachers to use ICT in teaching and learning, the design was survey method and population consisted of 80 students and teachers. The questionnaire was used to collect data, while frequency table and mean scores were used to analyze data. The finding reveled that computer skill, web design skill, programming skill, e-mail skill, use of world wide web skill in use of search engine are required by students and teachers to use ICT in teaching and learning. He concluded that ICT has enable teaching and learning to take place at any time, any where and recommended that students and teachers should be trained on use of ICT to enhance this technological literacy in other to use it effectively. The major difference between the reported study and present study is that while the purpose of the study is to find out technological competence required of students and teachers, the study is seeking to identify the degree to which it affects the use of ICT in teaching and learning Business Subjects.

The two studies are related in that the technological competence of students and teachers to use ICT will also be utilized when teaching and learning Business Studies. The study has the same design of study and instrument for data collection. Other areas of difference are in the instrument for data analysis, and that the reported study has only research question while the present study has both research question and hypothesis to be tested.

In a related study, Ogu (2006) assessment of use of ICT in teaching and learning Business Studies. The purpose of the study was to assess the use of ICT in teaching and learning Business Subjects. The researcher used four research questions to guide the study. The design of the study was 50 teachers in government owned secondary schools. The instrument for data collection was questionnaire while the instrument for data analysis was frequency distribution and mean score. The finding revealed that none of the government owned secondary schools use ICT for teaching and learning of Business Studies as a result of absence of ICT facilities, few computers for large class size, incompetency on use of computer and absence of technical engineers. The researcher concluded that the use of ICT for teaching and learning Business Subjects is necessary in this digital age so as to enable current practices to be identified in Business education and other discipline. The present study has the purpose of covering a wider area by identifying the factors that can affect use of ICT in teaching and learning.

Statement of the Problem

In recent years there has been an increase interest on how ICT facilities could best be harnessed to improve the efficiency and effectiveness of education at all levels, and in both formal and non-formal settings. However, the use of computer and the internet is still in its infancy in our pubic secondary schools with regard to Business Studies. ICT availability, utilization, adequacy and accessibility in teaching Business Studies in secondary schools in Nigeria has remain a mirage due to a number of constraints. This has been attributed to such factors as inadequate ICTs availability for training of teachers to acquire ICT skill acquisition, high cost of ICTs equipment and electronic devices and constant electric power

failure. It is in this vein that the researcher desires to examine the level of ICT facilities available, utilized, adequate and accessible for instructional delivery of Business Studies in secondary schools in Rivers State.

Purpose of the Study

The purpose of this study was to investigate the information and communication technology and the instructional delivery of Business Studies in public junior secondary schools in Rivers State. Specifically, the study attempted to:

1. Determine the level of information and communication technology facilities available for instructional delivery of Business Studies in junior secondary schools in Rivers State.
2. Examine the extent to which information and communication technology facilities are utilized for instructional delivery of Business Studies in junior secondary schools in Rivers State.
3. Determine the extent to which information and communication technology facilities available are adequate for instructional delivery of Business Studies in junior secondary schools in Rivers State.
4. Examine the extent to which information and communication technology facilities are accessible for instructional delivery of business studies in junior secondary schools in Rivers State.

Research Questions

The following research questions guided the study:

(1) What is the level of availability of information and communication technology facilities for instructional delivery of Business Studies in junior secondary schools in Rivers State?

(2) To what extent are information and communication technology facilities utilized for instructional delivery of Business Studies in junior secondary schools in Rivers State?

(3) To what extent are information and communication technology facilities adequate for the instructional delivery of business studies in junior secondary schools in Rivers State?

(4) To what extent are information and communication technology facilities accessible for instructional delivery of business studies in junior secondary schools in Rivers State?

Hypotheses

The following hypotheses were formulated and tested at 0.05 significant level:

Ho_1: There is no significant difference in the mean ratings of teachers and students on the extent of utilization of information and communication technology facilities for instructional delivery of business studies in junior secondary schools in Rivers State.

Ho_2: There is no significant difference in the mean rating of teachers and students on the extent of adequacy of information and communication technology for instructional delivery of business studies in junior secondary schools in Rivers State.

Ho_3: There is no significant difference in the mean rating of teachers and

students on the extent of accessibility of information and communication technology facilities for instructional delivery of business studies in junior secondary schools in Rivers State.

Methodology

This researcher adopted a descriptive survey research design approach. This is because it provides descriptive overview of the data that could be used to elicit information from the respondents (Ubulom, 2008). This study examined the extent of Information Communication Technology utilization for instructional delivery of business studies in Junior Secondary Schools in Rivers State. It was carried out in Rivers State of Nigeria. Specifically, the study was carried out in twenty three Government Junior Secondary Schools located in the twenty three (23) Local Government Areas in Rivers State. The population of the study consists of forty two (42) business studies teachers and thirteen thousand five hundred and eighty nine (13,589) students of twenty three (23) Government junior secondary schools in the twenty three (23) Local Government Area of Rivers State, given a total population size of thirteen thousand six hundred and thirty one (13,631). The cluster sampling technique was adopted for this study and Yaro Yemen formula was used to draw a total sample size of three hundred and eighty nine (389) business studies students while all the forty two (42) business studies teachers were used, arriving at the total sample size of four hundred and thirty one (431) respondents. The structured questionnaire tagged "Information and Communication Technology for Instructional Delivery of Business Studies"(ICTIDBS) was used. The questionnaire items was divided into four segments, the first two questions presented information to address research questions one and two while the last two addressed the third and last research questions respectively. The modified 2-points rating scale with response options of Available (A) = 3 points Not Available (NA) = 2 points was used for research question one, while the modified 4-point rating scale with response options of Very High Extent (VHE) = 4 points, High Extent (HE) = 3 points, Low Extent (LE) = 2 points and,Very Low Extent (VLE) = 1 point was adopted for research questions 2,3and 4 respectively.

The instrument was validated by an expert in Measurement and Evaluation and two experts in the Department of Business Education. The comments and suggestions from the experts were used to review the instrument before it was administered to the respondents. While the test re-test reliability method was adopted to determine the reliability of the instrument. The instrument was given to twenty-four Junior secondary students outside the study area to study and complete, and after two weeks the same instrument was re-administered to the same group of students. The two results obtained were correlated using the Pearson Product Moment Correlation Coefficient (r) to ascertain reliability co-efficient of 0.76.

Research Question 1

How available are information and communication technology facilities for instructional delivery of Business Studies in junior secondary schools in Rivers State?

Table 4.1: Availability of Information andCommunication Technology Facilities for Instructional Delivery ofBusiness Studies in Junior Secondary Schools in Rivers State

S/N	Availability of ICT Facilities for Instructional Delivery of Business Studies	Available (A)	Not Available (NA)
1	Computer	12	30
2	Internet facilities	5	37
3	Multimedia technology	4	38
4	Electronic typewriter	2	40
5	Overhead projector	-	42
6	Power point	-	42
7	Audio CD	3	39
8	Video CD	5	37
9	Video conferencing	-	42
10	Audio conferencing	-	42
11	Formatting tools	-	42
12	Electronic mail	2	40
13	Tele-conferencing	-	42
14	Tele-collaboration	-	42
15	Fax machine	-	42
16	Telephone	6	36
17	Social media packages	-	42

Source: Field Survey, 2017 **NA = Not Available**

The above table 4.1 shows number of responses of Business Studies teachers who said ICT facilities are available or not available for instructional delivery. From item 1 (12) teachers saidICT facilities are available while (30) teachers said it is not available, item 2 (5) teachers said is available while (37) teachers said it is not available, item 3 (4) teachers said is available while (38) teachers said it is not available, item 4 (2) teachers said is available while (40) teachers said it is not available, items 5 and 6all the (42) teachers said it is not available, item 7 (3) teachers said is available while (39) teachers said it is not available, item 8 (5) teachers said is available while (37) teachers said it is not available, items 9, 10 and 11all the (42) teachers said it is not available,item 12 (2) teachers said is available while (40) teachers said it is not available, items 13, 14 and 15 all the (42) teachers said it is not available,item 16 (6) teachers said is available while (36) teachers said it is not available, item 17 all the (42) teachers said it is not available. From teachers' responses above, it indicates that the information and communication technology facilities for instructional delivery of Business Studies in junior secondary schools were not available. From the foregoing, the researcher therefore concludes that information and communication technology facilities for instructional delivery of Business Studies in junior secondary schools in Rivers State were not available.

Research Question 2

To what extent are information and communication technology facilities utilized for instructional delivery of Business Studies in junior secondary schools in Rivers State?

Table 4.2: Mean and Standard Deviation Computations about the Extent to which Information and Communication Technology Facilities were Utilized for Instructional Delivery of Business Studies in Junior Secondary Schools in Rivers State.

(N = 431)

ICT Facilities Utilization for the Instructional Delivery of JSS Business Studies	Teachers (n = 42)				Students (n = 389)			
	Total Response	Mean() $(\overline{X})$	Std. Dev.	Remarks	Total Response	Mean $(\overline{X})$	Std. Dev.	Remarks
Computer	80.64	1.92	0.195	NU	820.79	2.11	0.191	NU
Internet facilities	60.48	1.44	0.164	NU	898.59	2.31	0.168	NU
Multimedia technology	76.44	1.82	0.142	NU	474.58	1.22	0.143	NU
Electronic typewriter	77.28	1.84	0.175	NU	478.47	1.23	0.183	NU
Overhead projector	74.34	1.77	0.167	NU	731.32	1.88	0.177	NU
Power point	78.12	1.86	0.169	NU	750.77	1.93	0.169	NU
Audio CD	89.46	2.13	0.188	NU	879.14	2.26	0.168	NU
Video CD	88.62	2.11	0.191	NU	859.69	2.21	0.187	NU
Video conferencing	51.24	1.22	0.187	NU	529.04	1.36	0.082	NU
Audio conferencing	52.92	1.26	0.134	NU	536.82	1.38	0.175	NU
Formatting tools	91.56	2.18	0.187	NU	525.15	1.35	0.159	NU
Electronic mail	73.08	1.74	0.165	NU	637.96	1.64	0.146	NU
Tele-conferencing	92.82	2.21	0.173	NU	902.48	2.32	0.137	NU
Tele-collaboration	89.88	2.14	0.158	NU	828.57	2.13	0.192	NU
Fax machine	52.50	1.25	0.128	NU	513.48	1.32	0.141	NU
Telephone	88.62	2.11	0.191	NU	447.35	1.15	0.156	NU
Social Media Packages	51.24	1.22	0.187	NU	470.69	1.21	0.181	NU
GrandMean $(\overline{X})$		**1.777**	**0.170**			**1.706**	**0.162**	

Source: Field Survey, 2017 **NU = Not Utilized**

Table 4.2 shows the calculated mean and standard deviation scores of the responses of the Business Studies Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were utilized for instructional delivery of Business Studies in junior secondary schools. In the Table, the computed mean scores of Business Studies Teachers' responses and that of the Business Studies Students regarding the extent to which all the 17 listed information and communication technology facilities were utilized for instructional delivery of Business Studies in junior secondary schools were lower than the average mean score of 2.5. This indicates that the information and communication technology facilities were not utilized for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State.

Research Question 3

To what extent are information and communication technology facilities adequate for instructional delivery of Business Studies in junior secondary schools in Rivers State?

Table 4.3: Mean and Standard Deviation Computations about the Extent to which Information and Communication Technology Facilities were Adequate for Instructional Delivery of Business Studies in Junior Secondary Schools in Rivers State.

ICT Facilities Adequacy for the Instructional Delivery of JSS Business Studies	Teachers(n = 42)				Students(n = 389)			
	Total Response	Mean $(\bar{X})$	Std. Dev.	Remarks	Total Response	Mean $(\bar{X})$	Std. Dev.	Remarks
Computer	52.92	1.26	0.134	NA	746.88	1.92	0.195	NA
Internet facilities	89.88	2.14	0.158	NA	560.16	1.44	0.164	NA
Multimedia technology	52.50	1.25	0.128	NA	707.98	1.82	0.142	NA
Electronic typewriter	97.44	2.32	0.137	NA	715.76	1.84	0.175	NA
Overhead projector	78.96	1.88	0.177	NA	688.53	1.77	0.167	NA
Power point	81.06	1.93	0.169	NA	820.79	2.11	0.191	NA
Audio CD	94.92	2.26	0.168	NA	474.58	1.22	0.187	NA
Video CD	92.82	2.21	0.187	NA	676.86	1.74	0.165	NA
Video conferencing	57.12	1.36	0.082	NA	859.69	2.21	0.173	NA
Audio conferencing	57.96	1.38	0.175	NA	828.57	2.13	0.192	NA
Formatting tools	56.70	1.35	0.159	NA	513.48	1.32	0.141	NA
Electronic mail	68.88	1.64	0.146	NA	447.35	1.15	0.156	NA
Tele-conferencing	91.56	2.18	0.187	NA	470.69	1.21	0.181	NA
Tele-collaboration	97.02	2.31	0.168	NA	723.54	1.86	0.169	NA
Fax machine	51.24	1.22	0.143	NA	482.36	1.24	0.146	NA
Telephone	51.66	1.23	0.183	NA	840.24	2.16	0.219	NA
Social Media Packages	89.46	2.13	0.188	NA	898.59	2.31	0.168	NA
Grand Mean $(\bar{X})$		**1.767**	**0.164**			**1.732**	**0.172**	

Source: Field Survey, 2017 **NA = Not Adequate**

Table 4.3 shows the calculated mean and standard deviation scores of the responses of the Business Studies Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were adequate for instructional delivery of Business Studies in junior secondary schools. In the Table, the computed mean scores of Business Studies Teachers' responses and that of the Business Studies Students regarding the extent to which all the 17 listed information and communication technology facilities were adequate for instructional delivery of Business Studies in junior secondary schools were lower than the average mean score of 2.5. This indicates that the information and communication technology facilities were not adequate for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State.

Research Question 4

To what extent are information and communication technology facilities accessible for instructional delivery of Business Studies in junior secondary schools in Rivers State?

Table 4.4: Mean and Standard Deviation Computations about the Extent to which Information and Communication Technology Facilities were Accessible for Instructional Delivery of Business Studies in Junior Secondary Schools in Rivers State.

ICT Facilities Accessibility for the Instructional Delivery of JSS Business Studies	Teachers (n = 42)				Students (n = 389)			
	Total Response	Mean($\bar{X}$)	Std. Dev.	Remarks	Total Response	Mean($\bar{X}$)	Std. Dev.	Remarks
Computer	89.88	2.14	0.158	NA	867.47	2.23	0.183	NA
Internet facilities	55.44	1.32	0.141	NA	789.67	2.03	0.188	NA
Multimedia technology	90.30	2.15	0.256	NA	727.43	1.87	0.167	NA
Electronic typewriter	94.08	2.24	0.181	NA	723.54	1.86	0.169	NA
Overhead projector	91.56	2.18	0.188	NA	848.02	2.18	0.187	NA
Power point	93.24	2.22	0.187	NA	696.31	1.79	0.165	NA
Audio CD	52.92	1.26	0.134	NA	859.69	2.21	0.173	NA
Video CD	78.96	1.88	0.177	NA	48.30	1.15	0.156	NA
Video conferencing	81.06	1.93	0.169	NA	871.35	2.24	0.181	NA
Audio conferencing	94.92	2.26	0.168	NA	886.92	2.28	0.189	NA
Formatting tools	92.82	2.21	0.187	NA	707.98	1.82	0.142	NA
Electronic mail	88.62	2.11	0.191	NA	715.76	1.84	0.175	NA
Tele-conferencing	97.02	2.31	0.168	NA	88.62	2.11	0.191	NA
Tele-collaboration	51.24	1.22	0.143	NA	746.88	1.92	0.195	NA
Fax machine	77.28	1.84	0.146	NA	560.16	1.44	0.164	NA
Telephone	91.98	2.19	0.191	NA	906.37	2.33	0.168	NA
Social Media Packages	89.46	2.13	0.192	NA	614.62	1.58	0.143	NA
Grand Mean ($\bar{X}$)		**1.975**	**0.175**			**1.934**	**0.172**	

Source: Survey, 2017 **NA = Not Accessible**

Table 4.4 shows the calculated mean and standard deviation scores of the responses of the Business Studies Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were accessible for instructional delivery of Business Studies in junior secondary schools. In the Table, the computed mean scores of Business Studies Teachers' responses and that of the Business Studies Students regarding the extent to which all the 17 listed information and communication technology facilities were accessible for instructional delivery of Business Studies in junior secondary schools were lower than the average mean score of 2.5. This indicates that the information and communication technology facilities were not accessible for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State..

Hypothesis 1

There is no significance difference in the mean ratings of teachers and students on the extent of utilization of information and communication technology facilities for instructional =delivery of business studies in Rivers State.

Table 4.5: T-test Computation of the Difference in the Mean Ratings of Teachers and Students on the Extent of Utilization of Information and Communication Technology Facilities for Instructional Delivery of Business Studies in Rivers State

Variable	N	Mean Score	Std Dev. Score	Sum of Square	Est. Std. Error	t-ratio Cal.	t-ratio Crit.
Business Studies Teachers	42	1.777	0.170	1252.47	1.3121	1.982*	±1.960
Business Studies Students	389	1.706	0.162	1231.33			

N = 431 df = 429 P< 0.05 * = Significant

The calculated mean and standard deviation scores of the responses of the Business Studies Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were utilization for instructional delivery of Business Studies in junior secondary schools are presented in Table 4.6. With N = 431, df = 429 and P > 0.05, the calculated t-ratio was 1.982 and the critical table value of t-ratio was ±1.960. That being so therefore the calculated t-ratio is statistically significant at $\alpha = 0.05$ level of significance since it is higher than the given critical value of t-ratio. The hypothesis (HO_2) is thus not accepted (that is rejected) and the conclusion is that there is no significant difference in the mean ratings of teachers and students on the extent of utilization of information and communication technology facilities for instructional delivery of business studies in Port Harcourt

Hypothesis

There is no significance difference in the mean rating of teachers and students on the extent of adequacy of information and communication technology for instructional delivery of business studies in Rivers State..

Table 4.6: T-test Computation of the Difference in the Mean Rating of Teachers and Students on the Extent of Adequacy of Information and Communication Technology for Instructional Delivery of Business Studies inRivers State.

Variable	N	Mean Score	Std Dev. Score	Sum of Square	Est. Std. Error	t-ratio Cal.	t-ratio Crit.
Business Studies Teachers	42	1.767	0.164	1246.22	1.2643	1.929^{+}	±1.960
Business Studies Students	389	1.732	0.172	1215.17			

N = 431 df = 429 P > 0.05 = Not Significant

The calculated mean and standard deviation scores of the responses of the Business Studies Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were adequacy for instructional delivery of Business Studies in junior secondary schools are presented in Table 4.7. With N = 431, df = 429 and P > 0.05, the calculated t-ratio was 1.929 and the critical table value of t-ratio was $\pm$1.960.Consequently, the calculated t-ratio is not statistically significant at α = 0.05 level of significance since it is less than the given critical value of t-ratio. The hypothesis (HO_3) is thus accepted (that is not rejected) and the conclusion is that there is no significant difference in the mean rating of teachers and students on the extent of adequacy of information and communication technology for instructional delivery of business studies in Rivers State.

Hypothesis

There is no significance difference in the mean rating of teachers and students on the extent of accessibility of information and communication technology facilities for instructional delivery of business studies.

Table 4.7: T-test Computation of the Difference in the Mean Rating of Teachers and Students onthe Extent of Accessibility of Information and Communication Technology Facilities forInstructional Delivery of Business Studies

Variable	N	Mean Score	Std Dev. Score	Sum of Square	Est. Std. Error	t-ratio Cal.	t-ratio Crit.
Business Studies Teachers	42	1.975	0.175	1436.29	1.4217	1.832^{+}	$\pm$1.960
Business Studies Students	389	1.934	0.172	1325.73			

N = 431 df = 429 P > 0.05 = Not Significant

The calculated mean and standard deviation scores of the responses of the Business Studies. Teachers and Students in Junior Secondary Schools in Rivers State regarding the extent to which information and communication technology facilities were accessibility for instructional delivery of Business Studies in junior secondary schools are presented in Table 4.8. With N = 431, df = 429 and P > 0.05, the calculated t-ratio was 1.832 and the critical table value of t-ratio was $\pm$1.960. Consequently, the calculated t-ratio is not statistically significant at α = 0.05 level of significance since it is smaller than the given critical value of t-ratio. The hypothesis (HO_4) is thus accepted (that is not rejected) and the conclusion is that there is no significant difference in the mean rating of teachers and students on the extent of accessibility of information and communication technology facilities for instructional delivery of business studies.

Discussion of Findings

In the course of this study, the researcher investigated the information and communication technology availability, utilization, adequacy and accessibility for instructional delivery of Business

Studies in junior secondary schools in Rivers State. The findings of this study with respect to the answered research questions and tested hypotheses are discussed as follows:

Based on the results of this study, the researcher discovered that information and communication technology facilities were not available for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State.This survey is not alone in the discovering of this fact. Okwudishu (2012); Azih, (2011); and Emuku & Emuku, (2000); also agreed that unavailability of ICT facilities for Business Studies instructional delivery has generated serious concern, and had hampered the acquisition of knowledge and skills expected to prepare the learner for the world of work. Also, the researcher discovered that information and communication technology facilities were not utilized for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State. The finding reveals mean values of 1.777 for teachers and 1.706 for students respectively. This range of values when compared to the cutoff mean of 2.50 is considered to be low, hence the remark of not utilized on the table. This indicates that the respondents disagree that they use ICT facilities in the instructional delivery process.In the study, it was also discovered that no significant difference existed in the mean ratings of teachers and students on the extent of utilization of information and communication technology facilities for instructional delivery of business studies in Rivers State. These results affirm the findings of Orji, (2012), and (Obi, 2010) they revealed that there is inadequate infrastructure such as ICT facilities, equipped, workshop and power supply which negatively impact on the use of ICT in teaching and learning. There studies also revealed that poor internet connection, broad band wireless, large class size and poor power supply is lacking in schools and it affects accessibility and use of ICT in teaching and learning of Business Studies. The finding also agreed with the result of Ogu, (2006) which revealed that none of the government owned secondary schools use ICT for teaching and learning of Business Studies as a result of absence of ICT facilities, few computers for large class size, incompetency on use of computer and absence of technical engineers.

Information and communication technology adequacy for instructional delivery of Business Studies.

Based on the results of this study, the researcher discovered that information and communication technology facilities were not adequate for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State. The results revealed that ICT facilities for the instructional delivery of Business Studies are not adequate, with the mean values of 1.767 for teachers and 1.732 for students respectively. This indicates that the respondents disagree that they use ICT facilities in the instructional delivery process. It was also found out that no significant difference existed in the mean rating of teachers and students on the extent of adequacy of information and communication technology for instructional delivery of business studies in Rivera State. The finding is in agreement with the study of (Ido& Asuquo, 2014) they asserted that adequacy is a function of availability, where there is unavailability there will be no adequacy because they are closely related. The study conducted by (Ugwu & Obegbulem, 2011), revealed that ICT

facilities required for teaching are either grossly inadequate or not available in most of the institutions. The finding also was in consonance with the study of (Aliyu, 2012), which reported that, to ensure optimum teaching and learning under the best conditions, ICT facilities are expected to be adequately and sufficiently provided with requisite instructional facilities and equipment.

Information and communication technology accessibility for instructional delivery of Business Studies.

Based on the results of this study, the researcher discovered that information and communication technology facilities were not accessible for instructional delivery of Business Studies in Junior Secondary Schools in Rivers State.The finding reveals mean values of 1.975 for teachers and 1.934 for students respectively. This range of values when compared to the cutoff mean of 2.50 is considered to be low, hence the remark of not accessible on the table. This indicates that the respondents disagree that they have access to ICT facilities in the instructional delivery process. It was also found out that no significant difference existed in the mean rating of teachers and students on the extent of accessibility of information and communication technology facilities for instructional delivery of business studies. These results affirm the findings of Orji, (2012), and (Obi, 2010) who revealed that poor internet connection, broad band wireless, large class size and poor power supply is lacking in schools and it affects accessibility and use of ICT in teaching and learning of Business Studies.

Conclusion

Based on the results and findings of this research work, the researcher therefore noted that non-availability of information and communication technology facilities for the instructional delivery of junior secondary business studies in Rivers State is a clear indication that the ICT facilities were not provided in the junior secondary schools. For the fact that the information and communication technology facilities were not available at the junior secondary schools in Rivers State shows that it will be a total error to even talk about the adequacy of the information and communication technology facilities in the junior secondary schools. Also, for the fact that the information and communication technology facilities were not available at the junior secondary schools in Rivers State means that business studies teachers may not have access to the facilities and even utilize them for effective instructional delivery of junior secondary schools business studies. On the other hand, if the information and communication technology facilities were available in the junior secondary schools in Rivers State how possible is it that business studies teachers would have been able to utilize them for effective instructional delivery if they were not well trained on how to make use of them.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The authorities of secondary education in Rivers State,should stress on the need for ICT facilities to be made available for instructional delivery of Business Studies in the institutions.

2. Efforts should be intensified by the authorities of secondary education in Rivers State to ensure that teachersare exposed to retraining

through workshops on the use of ICT facilities.

3. In order to ensure the effectiveutilization of ICT facilities, efforts should be intensified by the authorities concerned, to include ICTs in the school curriculum as an instructional material for business studies.

4 Ministry of education and the schools board should make compulsory the application of ICT facilities in Business Studies instructional delivery process.

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