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# AVAILABILITY OF ICT FACILITIES FOR TEACHING AND LEARNING IN SHEHU IDRIS COLLEGE OF HEALTH SCIENCES AND TECHNOLOGY, MAKARFI, KADUNA STATE, NIGERIA

**BY**
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**Abstract**
*The main objective of this study is to identify the availability of ICT facilities for teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi, Kaduna State, Nigeria. The Quantitative research methods as well as descriptive survey research design were adopted for this study. The population of this study comprised the entire students and lecturers (75 & 15) in the School of General and Applied Sciences, particularly, Health Information Management Department of Shehu Idris College of Health Sciences and Technology, Makarfi. The instrument used for data collection was questionnaire; the researcher sought the respondents to rate each of the options on a 4 point Likert scale in the tables for answering the research question numbers two and three. The instrument was subjected to face validity by the three experts and the reliability coefficient obtained through a pilot study was 0.82 and data were analyzed using descriptive statistics particularly frequency, percentage, mean and standard deviation. The findings revealed that, ICT facilities that are commonly available for enhancing teaching and learning are computer, internet, e-mail services, computer laboratory and social network. The study also found out that. It was also discovered that majority of the respondents highly utilizes ICT facilities for enhancing learning activities in the college computer laboratory, college business center, college library & college Internet centers. It is recommended that other ICT facilities such as radio, television set, scanner machine, photocopier machine, public address system, video conferences should be provide by the management of the college for easy facilitating teaching and learning.*
***Keywords: ICT facility, Teaching, Learning and Makarfi***

## Introduction

Information and Communication Technology facilities tend to expand access to education and enhance effective teaching and learning. Through the use of ICT facilities, learning can occur anytime and anywhere. Online course materials, for example, can be accessible 24 hours a day, seven days a week. Teleconferencing classrooms allow both learner and teacher to interact simultaneously with ease and convenience. Umar and Mohammed (2009) stated that Information and Communication Technology (ICT) is an umbrella term with include computer technology, information technology, communication technology, communication satellite, system software, application software, the Internet, and electronic delivery systems such as radios, televisions, and projectors among other facilities, and is widely used in today's educational system to enhance and facilitate teaching and learning efficiently and effectively. Information and communication technology (ICT) is often been described as the technology where computers and telecommunication devices are used for information gathering/acquisition, processing, storage, retrieval and dissemination to the relevant users. The use of information communication technologies (ICTs) in teaching and research by academics has arisen because of the increased demand for information and increasing number of information sources.

The information revolution and the extraordinary increase in the spread of knowledge has given birth to a new era of knowledge and information which affects directly all spheres of organizations' life cycle. Based on this trend, individuals, organizations and governments worldwide have recognized the role that Information and Communication Technologies could play in fostering growth and development (Kent & Facer, 2004). Similarly, Howell and Lundall (2000) viewed ICTs to encompass all forms of technology used to create, store, process and use information in its various forms (data, voice, image, multi-media presentations and other forms including those not yet conceived) and which enable, facilitate and support communication. More specifically, ICTs also include telephone, mobile phone, Private Automatic Box Exchange (PABX), photocopier, scanners, fax machines, close circuit television sets, cameras, Personal Digital Assistants (PDAs) conventional digital camera, microwave link systems and very small aperture

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terminal (V-Sat), computer, magnetic tape, Compact Disk Read Only Memories(CD-ROMs), Digital Versatile Disk (DVD) and the Internet. However, Information Communication Technology (ICTs) are commonly defined in education as 'a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information (Blurton, 2000).

Shehu Idris College of Health Sciences and Technology was established on January, 1954 as infant and maternal welfare clinic, in present day family health unit (College Practice Area) Tudun wada Kaduna. In 1958, the training community nurses started and the name of the clinc was changed to Community Nurses Training Center (CNTC). In 1971 the training of the community midwives started in the same premises. By October, 1977 the Training of the Community Nurses was merged with the training of sanitary overseers that was then taking place in the former administrative office (Magajin Gari) to present Tudun wada Kaduna campus. Therefore, the college passed through many stages of growth and development, in 2004 the college was named Shehu Idris College of Health Sciences and Technology, Makarfi and presently it has five schools with numerous courses such as National and Higher National Diploma programs that are run from various departments.

The Schools are: School of Environmental Health, School of Applied Sciences, School of Community Heath, School of General and Applied Science as well as School of Dental Technology respectively. Some of the courses are Health Information Management, Pharmacy, Medical Laboratory Technician, Bio-statistic, Social Development, Psychosocial Rehabilitation, X-ray, Environmental Health, Dental Therapy, Prosthetic, Dental Technology and Nutrition and Dietetics among others. However, the college is facing issues of shortage of classrooms, shortage of lecture halls/ theater, exam hall, laboratory facilities and all these has resulted loss of lecture hours. etc, Despite all this, the college remain the only one running those programs in the North West Zone of Nigeria. It is against this background that, the study is being conducted to address the problems of shortage of physical facilities the use of ICT in order to enhance teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi, Kaduna State, Nigeria.

**Statement of the Problem**

Technology is changing our environment at an ever increasing rate, while such technology provides improved opportunities for accessing, retrieval and interpretation of information. Realizing these opportunities requires knowledge and skills that are not easily acquired and are even more difficult to keep up to date. Technology in academic environment improves physical access to information but does not necessarily improve intellectual access. It provides a greater opportunity for peer learning and communication but the time to read, think and write cannot be reduced. It also provides a mechanism for the networking of invisible colleges. However, shortage of classrooms, shortage of lecture halls/ theaters, exam halls, laboratory facilities resulting in loss of lecture hours has created a wider gap between the students of Shehu Idris College of Health Sciences and Technology and their academic performance which affects the learning process as well as learning outcome of the students. It is against this background that, the study is being conducted to address the problems of shortage of physical facilities the use of ICT in order to enhance teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi, Kaduna State, Nigeria. Specifically, the study attempts to investigate the availability of Information and Communication Technology facilities for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi, Kaduna State, Nigeria.

**Research Questions**

The following research questions were raised to guide the study

1) What levels of ICT facilities are available for teaching and learning in Shehu Idris College of Health Sciences and Technology?
2) To what extent do the students utilize the ICT facilities for learning in Shehu Idris College of Health Sciences and Technology?
3) What are the challenges encountered by the lecturers in accessing ICT facilities for teaching and learning in Shehu Idris College of Health Sciences and Technology?

**Literature Reviewed**

Information and Communication Technology (ICT) includes computers, the Internet and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in

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today's education field. As Kent and Facer (2004) indicated that school is an important environment in which students participate in a wide range of computer activities, while the home serves as a complementary site for regular engagement in a narrower set of computer activities. Increasingly, ICT is being applied successfully in instruction, learning, and assessment. ICT is considered a powerful tool for educational change and reform. A number of previous studies have shown that an appropriate use of ICT can raise educational quality and connect learning to real-life situations (Lowther, et al., 2008; Weert & Tatnall, 2005).

Teaching is a noble profession and no society can advance and excel without an effective and virile teaching profession. Teaching is widely accepted as a public service that requires of teachers expert knowledge and specialized skills, acquired and maintained through rigorous and continuing study and demands for a sense of personal and corporate responsibility for the education and welfare of the learners under their custody (Agaba, 2009). Teaching is becoming one of the most challenging professions today where knowledge is expanding so rapidly that modern technologies demand the use of Information and Communication Technology facilities (ICT) to support effective teaching and learning. ICT facilities has become within a short time one of the basic building blocks of a modern society. Many countries now regard understanding ICT facilities and mastering its basic concepts as part of the core of educational development. As Kent & Facer (2004) indicated that school is an important environment in which students participate in a wide range of computer activities, while the home serves as a complementary site for regular engagement in a narrower set of computer activities.

Increasingly, ICT facilities are being applied successfully in instruction, learning and assessment. ICT facilities are considered a powerful tool for educational change and reform. A number of previous studies have shown that an appropriate use of ICT can raise educational quality and connect learning to real-life situations (Lowther, et al.2008; Weert & Tatnall, 2005). As Weert & Tatnall (2005) have pointed out, learning is an ongoing lifelong activity where learners change their expectations by seeking knowledge, which departs from traditional approaches. As time goes by, they will have to expect and be willing to seek out new sources of knowledge. Skills in using ICT will be an indispensable prerequisite for these learners.

Based on ICT facilities, learning and teaching no longer depend exclusively on printed materials. Multiple resources are abundant on the Internet, and knowledge can be acquired through video clips, audio, sounds, and visual presentation and so on. Current research has indicated that ICT facilities assist in transforming a teaching environment into a learner-centered (Castro, Sánchez & Alemán, 2011). Since learners are actively involved in the learning processes in ICT classrooms. The learners are authorized by the teacher to make decisions, plans, and so forth (Lu, Hou & Huang, 2010). ICT facilities therefore, provide both learners and instructors with more educational affordances and possibilities to offer special opportunities to stimulate growth and increase innovation in every local setting, thereby enabling individuals and institutions to interact more productively with the global economy and the wider world. But to realize their potential, technologies must be part of a mix of productive changes and supporting capabilities.

Today, ICT facilities have become a driving force in the academia. It provides a platform whereby academics can generate, store, retrieve, preserve and transmit information within and outside their organization (Deaney, 2011). Thus, the new ICTs have increased the information–processing capacity of the economy at an exponential rate, while simultaneously enhancing the salience of knowledge–based inputs in every aspect of production. Also, it enables organizations to dramatically reduce the cost of generating, storing, transmitting and processing information throughout all sectors of the economy (Al-Moussa, 2004). The use of Information and Communication Technology in education especially as it relates to teaching and learning activities is capable of tackling several educational problems (Al-Moussa, 2004). Essentially, ICT facilities in educational sector is used to promote information literacy that is the ability to access, use, evaluate information from different sources so as to enhance teaching and learning, solve problems and generate new knowledge. Furthermore, United Nations and the World Bank affirm that ICT facilities can increase access to education network for students, teachers and broaden availability of quality education material for emerging global economies (UNESCO, n.d). The use of computer aided instruction is to assist in self learning even outside the classroom, modern technologies are equally capable of addressing problems of shortage of teachers, serve as a teaching tool of addressing problems of shortage of teachers and also serve as a teaching tool to students, facilitate the development and upgrading of teaching skills.

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Teacher-learner interactive activity is an important learning technique which supports active learning environment by providing instant feedback and promoting student motivation (Scornavacca & Marshall, 2007). However, interactive activity in physical classroom has proven to be quite difficult and inefficient in large classes (Freeman & Blayney, 2005). When the teacher asks a question, not all of the students can respond. Responses from some students only cannot guarantee the comprehension of the whole class.

**Methodology**

The Quantitative research method was adopted for this study. Quantitative research method is more concerned with systematic empirical investigation of social observable phenomena via statistical, mathematical or computational techniques (Suleiman, 2007). The reason why the researcher used quantitative research method is to quantify the problem by way of generating numerical data. Also, it was used to quantify attitude, opinion, behaviors and other defined variables. The survey Research Design was adopted for the Study. According to Muhammad (2005) a research design is said to be survey design if it has no control group. Also, Suleiman (2007) said survey research design is used in studies that have individual people as the unit of analysis and for collecting original data for describing a population that is too large to observe directly. The study covered the area of availability of Information and Communication Technology facilities for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi in Kaduna State, Nigeria.

The study population refers to the total collection of elements which one would like to study or make inferences. Therefore, the population of this study which is shown below comprised of the entire students and lecturers in School of General and Applied Sciences.

**Table 1: Health Information Management Department of Shehu Idris College of Health Sciences and Technology, Makarfi**

| S/N | Categories | Numbers |
|---|---|---|
| 1 | Lecturers | 15 |
| 2 | Students | 75 |
| 3 | TOTAL | 90 |

Sources: School Director's office (2019)

Sample is a small proportion of population selected for observation and analysis. Sampling refers to the process by which part of the population is selected (Cooper & Schindler, 2011). However, the researcher used the entire population for this study and this is called census population.

The instrument used for data collection was questionnaire. The researcher used closed-ended questionnaire as instrument because it allows for data collection from the population who are able to read and write.

In order to ensure that the closed-ended questionnaire design is capable of eliciting required data and information from the respondents, the instrument was subjected to face validation by the three research experts from Department of Educational Foundations, College of Technical and Vocational Education, Kaduna polytechnic, Kaduna for their necessary input, observation and corrections. The comment, corrections, and suggestions were used to modify the final copy of the instrument. The researcher adopted face validity, which is in line with opinion of Ibrahim (2013) who indicated that, validation by experts is an effective method of measuring the accuracy of the instrument and for determining if an instrument is an accurate measure of the desired construct.

Reliability of an instrument deals with the measurement of internal consistency of an instrument if administered on similar respondents more than once. Ebel (2002), Awotunde and Ogdulunwa (2004) remarked that reliability is necessary in order to strengthen the validity of such instrument. This is in line with Mbachu, (2010) and Umar, (2010) who noted that pilot testing is usually done on a much smaller scale than the main study but under same or similar condition outside of the main study area. In line with the above, pilot study was conducted at Barau Dikko of Ahmadu Bello University Teaching Hospital Zaria in which ten (10) copies of the instrument were used during pilot test; it was done because the results from the instrument were enough for determining the reliability of the instrument. In order to arrive at reliability index, Split-half reliability method was used, where an index of 0.66 was obtained by dividing the number of variables in the questionnaire into odd and even numbers. This index was further subjected into Spearman Brown method where a final reliability index of 0.82 was obtained. This means that the instrument is highly reliable and can be used for the main study as indicated by Ma'aruf (2018), who said

ISSN 2705-2559
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that a reliability index between 0.5 – 0.9 is highly reliable. The study used means and standard deviations to answer the research questions.

**Results**

**Research question 1**

What levels of ICT facilities are available for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology?,

**Table 2: ICT facilities available for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology**

| S/N | ITEMS | Mean | SD | Remark |
|---|---|---|---|---|
| 1 | Computer | 3.2 | 3.4 | Accepted |
| 2 | Internet | 1.5 | 3.3 | Rejected |
| 3 | E- mail services | 3.1 | 3.3 | Accepted |
| 4 | Television set | 2.4 | 5.2 | Rejected |
| 5 | Projector | 3.1 | 5.1 | Accepted |
| 6 | Application software | 3.3 | 3.6 | Accepted |
| 7 | Computer laboratory | 3.4 | 3.7 | Accepted |
| 8 | Video conference equipment's | 2.2 | 4.5 | Rejected |
| 9 | Public address system | 3.0 | 4.8 | Accepted |
| 10 | Radio | 3.3 | 3.5 | Accepted |
| 11 | Social networks | 2.2 | 3.6 | Rejected |

**Keys**: **F**: (frequency) and **%** (percentage)

Table 2 presents the ICT facilities available for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology. From the table, it can be seen that ICT facilities that are commonly available for enhancing teaching and learning are computer, Internet, e-mail services, computer laboratory and social network with the highest frequencies and percentages respectively. It clearly indicated that those ICT facilities are available enhancing teaching and learning, the afore said facilities helps the students in carrying out their study through the process of getting their assignment done timely. Still from the table, it can be seen that radio, Video conference equipment's & Public address system are not adequate because of their lower frequencies and percentages respectively.

**Research question 2**

To what extent do the students utilize ICT facilities for enhancing learning in Shehu Idris College of Health Sciences and Technology?

In order to answer this research question four point Likert scale was used for answering the question and the numerical values attached to response options are as follows: Highly Utilized (4 points), Utilized (3 points), Rarely Utilized (2 points) & Not Utilized (1 points) respectively. The data analyzed for this research question is presented in table three below:

**Table 3. Extent of Utilization of ICT facilities by the students for Enhancing Learning in Shehu Idris College of Health Sciences and Technology**

| S\N | ITEMS | Mean | S.D | Remarks |
|---|---|---|---|---|
| 1 | Computer | 3.3 | 3.6 | Accepted |
| 2 | Internet services | 3.3 | 3.8 | Accepted |
| 3 | E-mail services | 3.2 | 3.4 | Accepted |
| 4 | Television set | 1.5 | 3.3 | Rejected |
| 5 | Projector | 3.1 | 3.3 | Accepted |
| 6 | Application Software | 2.4 | 5.2 | Rejected |
| 7 | Computer laboratory | 3.1 | 5.1 | Accepted |
| 8 | Video conferencing Equipment's | 2.6 | 4.5 | Accepted |
| 9 | Public address system | 2.3 | 4.6 | Rejected |
| 10 | Radio | 2.0 | 5.7 | Rejected |
| 11 | Social networks | 3.3 | 4.0 | Accepted |

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Table 3 presents the extent of Utilization of ICT facilities by the students for enhancing learning in Shehu Idris College of Health Sciences and Technology. It can be seen from the table that majority of the respondents highly utilizes ICT facilities for enhancing learning activities in the College.

**Research question 3**

What are the challenges encountered by the lecturer in accessing ICT facilities for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology?

In order to find out the answer to this research question, four point Likert modified scale was used for answering the question and the numerical values attached to response options are as follows: Strongly Agree (SA- 4point) Agree (A- 3 points), Disagree (D-2 points) & Strongly Disagree (SD -1 points) respectively. The data analyzed for this research question is presented in table four below:

**Table 4 Challenges Encountered in Accessing ICT facilities for Enhancing Teaching and Learning in Shehu Idris College of Health Sciences and Technology**

| S/N | ITEMS | Mean | S.D | Remarks |
|---|---|---|---|---|
| 1 | Lack of effective staff training to use ICT facilities | 2.8 | 5.1 | Accepted |
| 2 | Limited technical/ support personnel to help the staff of the college in accessing ICT facilities | 2.7 | 5.6 | Accepted |
| 3 | Limited access and network connection in the college to use ICT facilities | 3..5 | 3.2 | Accepted |
| 4 | Inadequate funds to have a functional ICT center | 3.3 | 3.6 | Accepted |
| 5 | Insufficient ICT Infrastructure in the college | 3.4 | 3.7 | Accepted |
| 6 | Lack of skills by the college staff in using ICT facilities | 2.2 | 4.5 | Rejected |
| 7 | Lack of proper monitoring of ICT facilities by the college management | 3.0 | 4.8 | Accepted |
| 8 | Lack of power supply to use ICT facilities | 3.3 | 3.5 | Accepted |
| 9 | Lack of teacher's ICT competency for effective teaching and learning | 2.2 | 3.6 | Rejected |

Table 4 Present the challenges encountered in accessing ICT facilities for enhancing teaching and learning in Shehu Idris College of Health Sciences and Technology**.** The result in the table shows that majority of the respondents strongly agreed on the challenges encountered in accessing ICT facilities for enhancing teaching and learning with the mean scores above the Cut off point of 2.5 Point on a four-point liket modified scale.

**Discussion**

The findings of this study revealed that, ICT facilities that are commonly available for enhancing teaching and learning are computer, Internet, e-mail services, computer laboratory and social network. This is because items 1, 2, 3, 7 and 11 in table 4.1 shows that, respondents agree with those items as a result of the high frequencies and percentages obtained by these items. This in contrary to the findings of Chattle (2004), Chenge (2003) and Chimeke (2004) that most Kaduna state higher institutions including Shehu Idris College of Health Sciences and Technology, Makarfi have either inadequate or no ICT facilities to cater for the ever increasing population of students in their institutions.

It was also discovered that majority of the respondents utilizes ICT facilities for enhancing learning such as computer, Internet services, e- mail services, projector, computer laboratory, video conferencing equipments and social networks. This is attributed to the fact that items I, 2, 3 5, 7, 8 and 11 have mean score higher than the cut off mark of 2.50 which signified the acceptance of these items by the respondents. These findings are in consonances with the assertion of Brush, Glazewski and Hew (2008) who stated that ICT facilities is used as a tool for students to discover learning topics, solve problems and provide solutions to the problems in the learning process. ICT make knowledge acquisitions more accessible and concept in learning areas are understood while engaging students in the application of ICT.

The findings revealed that majority of the respondents strongly agreed on the challenges encountered in accessing ICT facilities for enhancing teaching and learning such as Insufficient ICT infrastructure in the college, limited access and network connection in the college to use ICT facilities, inadequate funds to have a functional ICT center among others. This is due to the fact that items 1, 2, 3, 4, 5, 7 and 8 secured mean score of between 2.7 to 3.5 which are higher than the Cut off point of 2.50 which shows that the items are accepted by subjects of the study. These finding are in agreement with the earlier findings of

ISSN 2705-2559
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Silica's (2005) who noted that teachers complained how difficult it was to always have access to computer. That teacher would have no access to ICT materials because most of them are in adequate supply and hard to be shared with other teachers. In addition to this challenge, Newhouse (2002) earlier found out in his research that many teachers lacked the knowledge and skills to use computers and were unenthusiastic about the change and integration of supplementary learning associated with the bringing computers into their teaching practices.

**Conclusion**

The study revealed that, some of the available ICT facilities were not adequate in college and their utilization was a matter of concern due to their inadequate number. It is therefore imperative to conclude that the provision of ICT facilities and their proper utilization will facilitate teaching and learning in Shehu Idris College of Health Sciences and Technology, Makarfi with more teacher-learner oriented, easily accessible data bases that help teachers in their teaching activities.

**Recommendations**

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

1. Other ICT facilities such as radio, television set, scanner machine, photocopier machine, public address system, and video conferences should be provided by the management of the college for facilitating teaching and learning.
2. The school management should ensure proper utilization of ICT facilities for enhancing learning activities in the college computer laboratory, college business center, college library & college Internet centers by both lecturers and students of the college.

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