

THE IMPORTANCE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN BRIDGING THE GAP BETWEEN TEACHING AND RESEARCH IN HIGHER INSTITUTION

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Abstract

The importance of Information and communication technology in higher education cannot be overemphasized. This study focused on the importance of ICT in bridging the gap between teaching and research in higher institution. In employing the survey research design, the opinions of 115 academic staff was purposively drawn from the various faculties in Delta state University Abraka using an instrument labelled Role of ICT in teaching/Research (RITRQ). In analyzing the data collected, the three research questions were answered using means and standard deviation (SD). Summarily, the study finds that ICT has an impact in teaching and research. The study concluded that ICT is of great importance towards bridging the gap between teaching and research. It was recommended that lecturers in both federal and the state universities should be adequately trained in the use of ICTs best practices for quality teaching and research.

Key Words: ICT, Teaching, Research, Higher Education

In higher education systems, there has been a significant shift in enterprise training policy in terms of information and communication technology. In the other words, ICT learning and utilization is one of the most concerns of educational issues around the world and for a number of years there has been evidence in the training and development area. According to Bruce, (2002); Edwards, (2004, 2007) and Rader, (2002), it is essential that the pedagogy of ICT becomes the main focus of staff development and this will have to build upon in a constructive manner in order to allow instructors to achieve the full benefits of using ICT in their daily tasks (McCarney, 2004). It is generally understood that university teaching and learning refers to both the contents (skills, understandings and values) and the processes of teaching in higher education. Most experts in the field of education agreed that, when properly used, information and communication technology hold great promise to improve teaching and learning in addition to shaping workforce opportunities. Poole (1996) has indicated that computer illiteracy is now regarded as the new illiteracy. This has actually gingered a new and strong desire to equip schools with computer facilities and qualified personal necessary to produce technologically proficient and efficient students in only countries of the world.

The use of ICT in education lends itself to more student-centred learning settings. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century (Akpokiniovo and Toweh, 2015). According to Daniels (2002) ICTs 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 ICTs generally refers to 'computers and computing related activities'. This is fortunately not the case, although computers and their application play a significant role in modern information management, other technologies and/or systems also include the phenomenon that is commonly regarded as ICTs. Pelgrum and Law (2003) state that near the end of the 1980s, the term 'computers' was replaced with 'IT' (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 the term 'ICT' (information and communication technology) around 1992, when e-mail started to become available to the general public (Pelgrum and Law 2003).

Teachers are more than workers. They are also members of a profession. Their occupation renders definite and essential services to society. As a profession, however, teaching has had a long and difficult history. Its social and cultural functions have never been critically challenged, but nevertheless the public has not adequately supported teaching. Research is a common activity in every aspect of life, such as health, education economy, politics, fashion, culture and a host of others. Examples also abound. Take for instance, the case of an entrepreneur; he may sponsor a feasibility study aimed at generating data to enable him assess the technical feasibility and financial viability of an investment project.

Thus, the gap between teaching and research and bringing ICT in between the two concepts has been on the mind of the researcher and the area of. University education is the education given after secondary school. Some of the goals of university education in Nigeria as stipulated in the National Policy on Education (FGN, 2004) are to:

- contribute to national development through high level relevant, manpower training.
- develop and inculcate proper values for the survival of the individual and Society, and
- develop the intellectual capability of individuals to understand and appreciate their local and external environments.

The implication of the above is that the university education should have quality assurance by the performance of the graduate in terms of quality research. It is on this that the present paper investigated the importance of ICT in bridging the gap between teaching and research with more emphasis on the possible domains of using ICT in teaching and research, the main barriers ICT application in teaching and research and the essential supports needed for application of ICT in teaching and research.

Overview of Teaching and Research

Not every form of activity is work, even if it brings remuneration to the person engaged in it. It is work only when it produces something of value to others. The business of teachers is to help students achieve higher standards of knowledge, ability, skills, and moral character. If teachers do their work well, then their work is of great value to others, not simply in a particular time, but also in the future. When comparing teaching with other learned professions such as medicine, law, engineering, and architecture, teaching ranks rather low while some teachers are dissatisfied with, and even depressed about their professional standing. They feel that the work load is too heavy, and the recognition and appreciation are too limited. They think that they do not have sufficient opportunities to advance in their careers and they have no power to control the content and form of their work. They resent prohibition against their direct involvement in policy making in educational affairs. Time and again, they ask: is teaching a profession? More adequately, what is a profession? occupational status depends on the public valuing of the competence, role and overall contribution of a particular occupation to individual and societal welfare Goodson (2003) noted that Occupations that have attained professional status share the following characteristics:

- A high level of education and training based on a unique and specialized body of knowledge.
- A strong ideal of public service with an enforced professional code of conduct and high levels of respect from the public at large.
- Registration and regulation by the profession itself.
- Trusted to act in the clients best interests within a framework of accountability.
- A supportive working environment.
- Similar levels of compensation as other professions

Premised on the above position, one could note that profession performs essential social service. There is no doubt that teaching fully meets this criterion, for education is a social service. The service which education performs is essential to the individual child who could not be fully socialized in an industrial society if he did not spend lengthy period in fulltime formal education. Closely related to this is

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the view the fact that a profession is founded upon a systematic body of knowledge This means that a profession is not merely concerned with the exercise of some skill, but a skill which has intellectual foundation. The intellectual foundation of teaching, include body of knowledge and systematic delineation of, educational theory and pedagogy's as noted above, a profession requires a lengthy period of academic and practical training. Training and certification are essential parts of a profession. Essential training is needed to develop specialists and technicians in any profession. There must be some specification of the nature of the training through state regulations. Teaching certainly fulfils this criterion, but the teacher's period of training is not as long as that required for doctors and lawyers. The code of ethics indicates how members of the profession should behave. Professionalization occurs when enforcement is possible and vigorous (Ankomah, 2005).Nigerian teachers have an ethical code of conduct.

Man is by nature inquisitive. He wants to know more and more about the world in which he lives. In scientific circles, this desire for knowledge often leads to a systematic study of whatever phenomenon we are interested in. Yuen, Law and Wong (2003) explain research as knowledge that can be explained or verified through some procedures. According to them, "if one need to engage in any research, the expected outcome of the research must be important otherwise, there will be no need for the research. Consequently, all research activities start from a problem(s) that require solution(s). This may sometimes originate from an idea, a puzzle or simply the desire to explore knowledge about issues, phenomena, situations or societies.

Research is simply a thorough, systematic, organized and purpose driven search for knowledge and facts to support a position or argue a phenomenon. The New Oxford dictionary also defines research as "a careful, systematic, patient study and investigation in some field of knowledge undertaken to discover or establish facts and principles". This can also be noticed in the Webster's Ninth New Collegiate Dictionary of research thus: investigation of experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts or practical applications of such new or revised theories or law. Research "is a systematic, careful inquiry or examination to discover information or relationships and to expand/verify existing knowledge for some specific purpose"(Roger 1983). Kerlinger (1973) defined research as "a systematic, controlled, empirical and critical investigation of hypothetical propositions about presumed relations among natural phenomena". According to Wikipedia, research comprises "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to device new application". Rader (2002), defined research as "searching for and gathering information, usually to answer a particular question or problem". Another definition of research is given by (Roger 1983) as the gathering of data, information and facts for the advancement of knowledge".

Objectives of Teaching Research in Higher Education

The objective of any scientific, social or educational research effort is to obtain dependable answers to questions of interest to the scientist and humanity.

The followings are the objectives of teaching research.

- To discover new facts.
- To find solutions to scientific and social problems.
- Its helps to determine the frequency which something occur.
- To gain better understanding of phenomenon.
- Research seeks to discover and verify relationships among different aspects of nature.
- Research seeks to expand existing knowledge that brings about development.

The Concept of ICT

Information and Communication technology refers to a technology employed in the form of tools, equipment and application support which helps in the collection, storage, retrieval, use, transmission, manipulation and dissemination of information as accurately and efficiently as possible for the purpose of enriching the knowledge and developing communication, decision- making as well as problem solving ability of the user (Akpokiniovo and Toweh 2015) Increasingly, the term is used to refer to multimedia personal computer (PCS), Laptops, application software such as word processing, spreadsheet, PowerPoint simulation and speed, recognition of Local Area Network (LAN), Wide Area Network (WAN), computer database and data processing mechanism, CD ROM and DVD, e- mail, internet and World wide Web (www), video – text, tele-text, interactive video- text, interactive video disk (IVD) and interactive remote instruction (IRI). It encompasses various forms of information delivery system such as televisions, radios, newspapers, computer, the internet (Unchidiuno, 2006).

ICT as aids to Teaching and Research

The importance of ICT to both teaching and research are quite evidenced from the educational perspective. Though the chalkboard, textbooks, radio/television and film have been used for educational purpose over the years, none has quite impacted on the educational process like the computer. While television and film impact only on the audiovisual faculties of users, the computer is capable of activating the senses of sight, hearing and touch of the users. ICT has the capacity to provide higher interactive potential for both teachers and learner's to develop their individual, intellectual and creative ability. (Shavinina, 2001). The collective, and the passive nature of the learning associated with the use of radio, television and film do not contribute any innovative changes to traditional methods in education system. Information and communication technologies are being used in the developed world for instructional functions. Today, computers perform a host of functions in teaching and learning as many nations are adding computer literacy, reading and writing literacy as skills students will need for succeeding in a technologically developed world (Thomas, 1987). At the instructional level, computers are used by students to research, thereby making teaching faster. One of the examples of the ICT in aiding teaching is the GOOGLE. Today ICT has really added more glamour to teaching.

In the area of educational multimedia application, Aduwa-Ogiegbaen and Iyamu, (2005), asserted that today's learning contents are domain-specific products and that they dominate the world market. Domain-specific educational multimedia is directed to knowledge acquisition skills development in the language arts, history, physics, literature, biology and so on. There is no doubt that ICT provides productive teaching and learning in order to increase people's creative and intellectual resources especially in today's information society. Through the simultaneous use of audio, text, multicolour images, graphics, motion, ICT gives ample and exceptional opportunities to the students to develop capacities for high quality learning and to increase their ability to innovate. Tertiary institution in Nigeria cannot afford to lag behind in using multimedia to raise the intellectual and creative resources of her citizens. This is particularly important for children whose adulthood will blossom in a cyber environment entirely different from that of the present (Shavinina, 2001).

Statement of the Research Problem

The main problem of this research is exploring different aspects and scopes of using ICT in bridging the gap between teaching and research at academics and departmental level. Despite the significance of information and communication technologies (ICT) in higher education in Nigeria, and its widespread use, there has been relatively little research in the area of its importance in bridging the gap between teaching and research. The question here is that in what area has ICT help in teaching research? does ICT have any yardstick in teaching research? It is against this backdrop that the present paper investigated the importance of ICT in bridging the gap between teaching and research in higher institution.

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Research Questions

The following research questions were raised based on the problem stated.

1. What are the areas of using ICT to bridge the gap between teaching and research?
2. What are the challenges of ICT application in bridging the gap between teaching and researching?
3. What are the essential supports needed for the application of ICT to bridge the gap between teaching and researching?

Methodology

The study adopted the survey's design. The population of the study includes all academic staff in Delta State University Abraka campus with a total population of 1150, this was collected from the Academic Planning Unit of the University. The Purposive sampling technique was used. The sample size comprise of 30 academic staff from faculty of education and 28 academic staff from the rest faculty in Abraka campus which gives a total of 155 academic staff i.e Faculty of Education(30), faculty of science(28), faculty of social science(28) and Basic Medical Science(28). An instrument labelled Role of ICT in teaching/Research (RITRQ) was developed for the study. This was used to elicit information from the subjects of the study. The 12 items questionnaire was four point modified likert scale that was scored in a continuum of strongly agree, agree, disagree and strongly disagree. Respondents were free to agree or disagree to any of the statement in the questionnaire. To validate the instrument, the assistance of two research expert in measurement and evaluation was solicited who validated the instrument constructed to make sure it covered the face validity. Thus, after necessary corrections, the drafted final copy was distributed. To ensure high percentage return of the research instrument, the researchers were helped by two research assistants to distribute copies of the questionnaire. This was done to ensure that all the copies were collected. The research questions were answered using means and standard deviation (SD). The rule of thumb by Kerlinger (1973) was introduced, a mean of 2.50 or above indicated that the respondents agreed with the items statement while a mean of 2.49 or below indicated that the respondents disagree with the items statement.

Results

The analysis and presentation of results are organized around the research questions.

Research Question 1: What are the areas of using ICT to bridge the gap between teaching and research?

Table 1: Areas of Using ICT in teaching and Research

S/N	Item	SA	A	D	SD	Mean	Decision
1	Using email in teaching and learning activities	23	113	19	0	3.02	Accept
2	Producing digital unlimited leaning materials (e-books, handouts ...)	70	85	0	0	3.45	Accept
3	Using digital libraries and internet-based information for enrichment of teaching and research	113	23	19	0	3.02	Accept
4	Using supplementary soft ware's for effective teaching and research	39	36	53	27	2.56	Accept
CLUSTER MEAN		3.0				Accept	

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The table above shows the areas of using ICT in teaching and research. From the analysis done on item 1-4 having a mean of 3.02, 3.45, 3.02 and 2.56 respectively, having a cumulative mean of 3.0, it was accepted that using email in teaching and learning activities, producing digital unlimited learning materials (e-books, handouts ...), using digital libraries and internet-based information for enrichment of teaching and research and using supplementary soft ware's for effective teaching and research are some of the possible domains of applying ICT to bridge the gap between teaching and research.

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Research Question 2: What are the challenges of ICT application in bridging the gap between teaching and researching?

Table 2: Challenges of ICT Application in Teaching/Research

S/N	Item	SA	A	D	SD	Mean	Decision
5	The lack of orientation /training program on computer literacy or low rate of academic participation ICT programs	7	102	22	26	2.6	Accept
6	The lack of budget in faculties to equip the classes and preparing ICT equipments	56	0	54	45	2.4	Weak
7	The absence of students' access to personal computers (PC)	12	85	46	12	2.6	Accept
8	Inadequate power supply	132	8	15	0	3.60	Accept
CLUSTER MEAN					2.8		Accept

The table above shows the challenges of using ICT in between teaching and research. From the analysis done on item 5, 7 and 8 having a mean of 2.6, 2.6 and 3.60 respectively, with only item 6 having 2.4 mean regarded as weak, having a cumulative mean of 2.8, An assessment of the cumulative mean score and comparing it with the individual scores of the item indicated that lack of orientation /training program on computer literacy or low rate of academic participation ICT programs, absence of students' access to personal computers (PC) and inadequate power supply are the major challenges of ICT in teaching and research in higher institution.

Research Question 3: What are the essential supports needed for the application of ICT to bridge the gap between teaching and researching?

Table 3: Essential Supports Needed for the Application of ICT to Bridge the Gap Between Teaching and Researching

S/N	Item	SA	A	D	SD	Mean	Decision
9	Keeping academics informed on new and effective ICT's instruments and equipments	85	70	0	0	3.45	Accept
10	Availability of a well designed website even an equipped class with PC`s, video projectors and the other necessary equipment	8	132	0	15	3.60	Accept
11	Encouraging Students to attend and participate in workshops and labs to use ICT features	12	85	46	12	2.6	Accept
12	providing computer literacy training for university academics	53	36	39	27	2.56	Accept
CUMMULATIVE MEAN					3.1		Accept

The table above shows the analysis on the essential tools needed for the application of ICT to teaching and research, an assessment of item 9-12 of the research instrument shows that the respondent agreed to the fact that keeping academics informed on new and effective ICT`s instruments and equipments, availability of a well designed website or even an equipped class with PC`s, video, encouraging Students to attend and participate in workplaces and labs to use ICT features and providing computer literacy training for university academics projectors and the other necessary equipment are the most essential support needed for the application of ICT to bridge the gap between teaching and research.

Discussion of Results

This study investigated the importance of ICT in teaching and research in higher institution. The first research question sought to determine possible areas of using ICT in teaching and research. Results presented in table 1 showed the various areas of integrating ICT into teaching and research. However, with item 1, 2 and 3 having the highest mean rate of 3.02, 3.45 and 3.02, shows that that using email in teaching and learning activities, producing digital unlimited learning materials (e-books, handouts ...) and using digital libraries and internet-based information for enrichment of teaching and research are some of the domains of using ICT to bridge the gap between teaching and research. This observation agreed to that of Kourosh, Sheida and Nahid (2010) who opined that ICTs can be used to support teaching and learning as well as research activities including collaborative learning and inquiring and one of the main applications of the ICTs in higher education is teaching and learning using the computer and projector and GOOGLE.

The second research question investigated the challenges of ICT application in bridging the gap between teaching and researching. The analysis in the second table revealed that lack of orientation /training program on computer literacy or low rate of academic participation ICT programs, absence of students' access to personal computers (PC) and inadequate power supply are the major challenges of ICT in teaching and research in higher institution. In another development, the third research question determined the essential supports needed for the application of ICT to bridge the gap between teaching and researching. From the mean analysis in the third table, item 9 and 10 having the highest mean of 3.45 and 3.60 shows that keeping academics informed on new and effective ICT's instruments and equipments and availability of a well designed website or even an equipped class with PC's, video are some essential support needed. In line with this agreement, Yuen, Law and Wong (2003), asserted that today's learning contents are domain-specific products and that they dominate the world market. Also Thomas, (1987), agreed that today, Regardless of the low rate of participation of faculty members in ICT workshops and training and development events, ICT perform a host of functions in teaching and learning as many nations are adding computer literacy, reading and writing literacy as skills students will need for succeeding in a technologically developed world.

Conclusion/ Recommendations

This study concludes that ICT has the potential to expand the wall of lecture theatre and beyond. It is pertinent to note that ICT has now brought teaching/research to door of both lecturers and students of higher institution, lecturers and student now explore the world in cost effective and safe way through the use of ICT. However, insufficient technical supports at schools and little access to Internet and ICT prevent researchers to use ICT in the classroom. From the findings summarized above, the following are recommended:

1. Higher institutions should provide appropriate and sufficient ICT tools and support for the lecturers and students in other for them to be aware of what is happening in the educational system and what changes are occurring.
2. There should be training and re-training of lecturers on the acceptance and integration of ICT into teaching and research.
3. There should be constant power supply in institution of learning to overcome the unwillingness of ICT usage.

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