

# HARNESING INFORMATION COMMUNICATION TECHNOLOGY FOR STUDENTS' PRODUCTIVITY

By

***Marcel Onyema Eze, Ph.D***  
***National Productivity Centre***  
***Edo State office,***  
***Benin city***

and

***Desmond Onuigwe Onwo, Ph.D***  
***Caritas University***  
***Amorji- Nike***  
***Enugu State***

and

***Grace Obioma Nwankpa***  
***National Productivity Centre,***  
***Enugu State Office,***  
***Enugu.***

***and***

***Ajah Franca Nnenna***  
***National Productivity Centre,***  
***Enugu State Office,***  
***Enugu.***

## **Abstract**

*Information Communication Technology (ICT) embraces all technologies for the extraction, manipulation and communication of information (Owoeye,*

2011). *Contemporary academic exercise involves high level of documentation , information processing, storage, and retrieval. The information intensiveness of student demands the use of tools and technologies that would speed up the documentation, management and information handling for experimentation, caculation,analysis and research. This attracts accuracy and productivity of students in their academic functions. The aid of Productivity gap theory was utilized to observe that students have not effectively harnessed ICT in their studies. The paper recommends that teachers and students should be properly equipped with ICT knowledge and gadgets, equipments and accessories for enhanced productivity.*

**Key Words: Productivity, Productivity Gap, ICT, Integration, Technology.**

Information Communication Technology (ICT) is an umbrella term that includes all technologies for the manipulation and communication of information. Education today demands a high level of documentation and information processing, storage, and retrieval. The value of accuracy, correctness, completeness, relevance and timeliness are characteristics of information which ICT systems do generate to meet student's information needs. Throughout the world, many countries have introduced information and communication technologies (ICT) into schools via different courses of action. It is not easy to comment upon the diverse and profound impact that information technology has had on our society which is so apparent in our education and service sectors. Their use is also underlined by ministry of national education (MNE 2003) as a necessity for improving quality in teaching and learning. This information technology affects the instructional delivery methods and as such keeping up with these changes can be a daunting task for educators. Moreover, in the present day complex world, they are expected to help boys and girls to learn to live effectively as preparation for useful and well adjusted lives in the society. This means that our school should help them acquire a philosophy of life, attitude, skills concepts understandings and knowledge that will help them for the next sixty or seventy years of their lives. These represent the broader goals of our education.

For effective teaching and learning, teachers ought to employ different ways and means which will appeal to the senses of the students in the classroom; necessary stimuli must be provided by the teachers in order to elicit the desired responses. Gulbahar (2008) opined that the educational experiences involving the learner actively participating in concrete example are retained longer than abstract experiences. I.C.T materials are no doubt most effective in stimulating these senses. These senses include; hearing, smelling, feeling and sight in order to increase the student's level of perception. Teaching has always been based on a limited knowledge, and as a result, the utilization

of the ICT media among teachers often relies on traditional application of technology. There is, however, a tremendous potential for technology to be fostered as a tool that can overcome the traditional isolation of the classroom setting (Braun 1997). ICT integration in schools is needed to accomplish many an objective among which is the actualization of Nigeria's Vision 20:2020 which is aimed at bringing Nigeria to the league of the world's 20 leading economics by year 2020. ICT is moving teaching from chalkboard and textbooks to complete interactive media, complete system of distance learning, e-learning and visual schools, with customized spacing for individual students. This paper examines the challenges of enhancing students' productivity through the use of information communication technology.

### **Theoretical Framework of Analysis: Productivity Gap Theory**

A productivity or capacity gap is the difference between what a person can do and what that person actually does. It applies to team work, the church, organization e.t.c. The gap is referred to as service gap and is considered the most important because it determines the level of satisfaction / dissatisfaction with the service and ultimately the organization. Productivity Gap exists when there is a difference or gap between what an employee, institution, agency actually does and what he is expected to do. It amounts to "performance problem" which individuals, institutions and agencies encounter today at work places. "Whenever the performance problem occurs, the impact is unproductively which is a short fall between the level of performance of an employer, institution, agency and the level of expected accomplishment"(Eze,2013). The gap describes a sustained difference between measured output per worker (or GDP per person employed over another in an agency, institution e.t.c. (Riley, 2009:1). In this study, productivity gap is used to describe the inefficiency identified in the use of information communication technology equipment among students.

### **Definition of Concepts**

#### **Information Communication Technology**

According to Oxford Advance Learners Dictionary, information technology is the study or use of electronic equipments especially computer for sorting, analyzing and sending out information. According to UNESCO, "ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social economics, and cultural matter". Information technology is the creative application of scientific and systematic knowledge, tools and techniques to the solution of problems of human communication and information system. Such problems may be found in industry, commerce, education or even health care. According to National Teacher Institute (2007), Information Communication Technology is "a generic term to cover acquisition, processing, storage and dissemination of information- textual, numerical, pictorial and vocal; The concept is

restricted to systems dependent on microelectronics- based on combination of computing and telecommunications technology since the early 20th century.

### **Productivity**

According to American Heritage dictionary, productivity is the quality of being productive; the rate at which goods or services are produced especially output per unit of labour or the rate at which radiant energy is used by producers to form organic substance as food for consumers. This reflects socio-economic and ecological definition. Productivity compares the amount of output to the amount of input resources used to produce the output at any given period in time. In essence, higher productivity means more efficient and effective utilization of input resources. According to Prokopenko, (1987:1) productivity “is the relationship between the output generated by a production or service system and the input provided to create this output. Thus, productivity is defined as the efficient use of resources: labour, capital, land, materials, energy and information in the production of goods and services. He argues that regardless of the type of production, economic or political system, the definition of productivity remains the same”.

Economists view productivity as the ratio of output to input in any given period of time. That is: the amount of output produced by each unit of input. Business managers, on the other hand see it “not only as a measure of efficiency but also effectiveness and performance of individual organization” (Anyanwu, 2004). For them productivity “incorporates quality of output, adherence to standard, absence of complaint, customer satisfaction e.t.c”(Udo-Aka,1983:75).The administrator “is more concerned with organizational effectiveness, while the industrial engineer focuses more on those factors which are more operational and quantifiable, work measurement and performance standard”(Adekoya ,1989:56). Olajide (2010:26) asserts that productivity “can be computed in a firm, industrial, group or the economy as a whole. It measures the level of efficiency at which scarce resources are being utilized”. In our considered opinion, productivity measurement is wholistic in so far as what is set to measure is outstanding, be it policy, economy, firm ,enterprise e.t.c. The essence of measurement, evaluation, or examination is to match and appropriate tools for efficiency and effectiveness. Pan African Productivity Association(PAPA) in 1995 came up with a working definition as follows: Productivity is the function of producing more and more goods and services to more and more people with less and less consumption of real resources; Productivity is a process whereby inputs are converted to goods and services to satisfy market needs. In this study productivity entails doing things right and doing the right thing at the least possible cost with possible quality output. Simply put, productivity is to create more with less; gain more with less. Productivity is result oriented (Eze, 2013:4).

### **The Need for ICT Integration in Schools**

Information Communication Technology integration in schools is needed to accomplish many objectives and improve the quality of lesson in all subject areas. ICT increasingly pervades various aspects of our daily lives which include work, business, learning, leisure, and health. Since ICT leads a process based on information, every individual in a society should become technology competent. Thus all schools have to be equipped with the necessary ICT in order to provide the next generation with the needed tools and resources for access and use and to attain the expected skills. Norris, Sullivan and Poirot (2003.:25) pointed out the importance of accessibility as “teachers use of technology for curricular purposes is almost exclusively a function of their access to that technology” merely providing schools with hardware, software and in-service training is not enough. Any in-service training needs a follow-up support, peer coaching and peer dialogue to ensure successful utilization of new technologies. There must be active involvement of the teacher concerned in the whole change process so that there is the element of ownership” of the innovation.

Filling schools with necessary ICT neither improves the quality of instruction nor creates effective learning environment. However, embracing a broader vision and philosophy, schools should revise present teaching programmes, practices and resources and ICT should be integrated into all the levels of an educational system from classroom to ministries for use in management, teaching and learning activities, hence, “teachers must receive adequate ongoing training, technology use be matched to curriculum’s philosophy and theory of learning and adequate number of computer must be conveniently located within the classrooms” Al-Balataneh & Brooks (2003:479).

### **Productivity of Information Communication Technology (ICT) on Students Academic Performance**

Information technology (IT) is concerned with the use of technology in large organizations .In particular, it deals with the use of electronic computers and computer soft ware to convert, store, protect process, transmit and retrieve information. For that reason, computer professionals are often called Information Communication Technology specialists or business process consultants and the division of a company or university that deals with soft ware technology is often called the information technology department. In United Kingdom education system, information technology was formally integrated into the school curriculum when the national curriculum was devised. It was quickly realized that the work covered was useful in all subjects. With the arrival of the internet and the broad band connections to all schools, the application of information technology knowledge, skills and understanding in all subjects became a reality.

This change in emphasis has resulted in a change of name from information technology to information and communication technology (ICT). Information and

communication technology in education can be understood as the application of digital equipment to all aspects of teaching and learning. It is present in almost all schools in advanced countries and is of growing influence. However, for the past three (3) decades there is a legitimate concern that developing countries have been slow in terms of facilitation of learning among the majority of citizens.

The National Grid for learning, United Kingdom government initiative indicated that teachers must move swiftly to more internets and web based work in schools. According to Busari (2006), the whole world is experiencing the advancement of science and technology. Each nation is either a powerful producer of technology or a consumer of other nation's technology efforts. Infact, technology has made the whole world a global village and ICT breakthrough has made new landmark in globalizing education. The use of ICT is fast gaining prominence and becoming one of the most important elements defining the basic competencies of the students. According to World Bank, Information Communication Technology consists of the hardware, software, networks, and media for the collection, storage, processing, transmission and presentation of information; The use of ICT falls into four (4) major categories; constructing knowledge and problem solving (through the internet-mail, CD-ROMs, databases, videoconferencing); using process skills; aiding explanation of concepts; and communicating ideas {power point, desktop publishing) (WCEA, 2002).

The use of ICT in teaching is a relevant and functional way of providing education to learners that will assist in imbibing in them the required capacity for the world of work. Very few jobs today do not require the use of skills in technology, collaboration, teamwork, and information; all of these can be acquired through teaching with ICT. It fundamentally changes the way we live, learn and work. The importance of ICT is quite evident 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 computer. While television and film impact only on the audio visual facilities 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 users to develop their individual, intellectual and creative ability.

For instance, there are always some basic skills and knowledge derived from Information and Communication Technology which are very useful in the teaching and learning of physics in our senior secondary schools. The physics skills which involve the use of graph without the use of pen and paper, derivation of formula's in physics with the use of internet, solving problems using different methods, introduction of electronic computer system into the learning and teaching of physics.

Technology has entered the classroom in a big way to become part of the teaching and learning process. For example, Physics as a science oriented course or discipline is known for its abstract nature (having no material existence). Sometimes the physics teacher does not have adequate knowledge, but have to fall on ideas which lead

to contradictions with what the physics theory says or meant. Students are left on their own, even when they are to read on their own, they find no material to read, \where it is available, most of them are obsolete material. That is, some of these materials include text books, journals, research publications and news papers e.t.c. where these materials are lacking the students are forced to lose interest, motivation and passion; in some cases frustration sets in and

Students abandon the discipline or subject matter (physics) for another which they can cope with. However, physics is a unique subject, which promotes the acquisition of specialized science skills and knowledge, which explains the natural phenomena of life in the society. It is a subject that grew up with civilization as man's quantitative needs increased. It arose out of practical problems and man's need to solve these problems. It has contributed to the development of the sciences and to the development of civilization.

Despite the abstract nature of physics, its teaching is to bring about scientific thinking in students; a mind set that requires students to test out, through experimentation.

According to Osunade (2003) internet is a valuable source of information for students looking for ideas for project and assignments. Supporting this, Agommuoh & Nzewi (2003) believed that students who are exposed to video-based instructions in physics and other science subjects had significantly better results than those who were taught using the conventional method.

### **Problems of Information Communication Technology for Students' Productivity**

It is worthy to mention that ICT use in developing countries has been hindered by many problems which include; insufficient fund allocation, inadequate manpower requirement, power outages, prohibitive cost of importation of hardware, software and the accessories of ICT, conservatism on the part of management and unfavourable government policies. Others include; lukewarm attitude towards alleviating the sufferings of academic institutions by the government, lack of training culture in ICT skills, inadequate infrastructures such as personal computers and communication facilities.

### **Conclusion**

The role of ICT in teaching and learning is not merely developing ICT skills, and competencies. It involves developing in the students and teachers the ability to continuously update them to ascertain the kind of ICT suitable for the learning experiences to be provided and to use ICT to optimize the process of learning. To achieve these objectives the paper ,recommends that students should not only have a working knowledge of ICT resources and ability of self-financing but also where innovations are concerned, they should be exposed to ICT-supported learning environment during training. Using ICT to learn will help to achieve the objectives of

contemporary demands of education in Nigeria. Teachers and students should be properly equipped with ICT for efficient service delivery. Government should also develop a curriculum making the use of information communication technology mandatory for secondary schools and tertiary institutions in Nigeria.

### References

- Alan R. (2004). An Empirical Study of the Effect of Information Technology Expenditures on Student Achievement. *Information search* Vol.4.July.
- Anyanwu, C.M, (2004). *Productivity in the Nigerian Manufacturing Industry*. Research Department, CBN
- Eze, M.O.(2012). Productivity, Economic Diplomacy and Debt Relief in Nigeria: Analysis of Olusegun Obasanjo’s Foreign Policy. *Journal of International Politics and Development Studies* Vol.7 January- December.
- Eze, M.O (2013). “Productivity and National Integration Policy in Nigeria” *Anambra State University Journal of Social Sciences, Law and Humanities. (ANSU). Vol. 1 No.1, September.*
- MNE (2003) Ministry of National Education Nigeria Vision 20:2020 abridged version (2010)
- Owoeye, J..E (2011) Information Communication Technology (ICT) Use as a Predictor of Lawyrts Productivity. *Library Philosophy and Practice*.
- Prokopenko, J. (1987) *Productivity Management: A Practical Handbook*. Geneva: International Labour Office
- Udo-Aku, U (1983) Measuring Productivity: issues and Problems of Productivity in Nigeria. *Proceeding of a National Conference, Edited by Osaba,A.M.*