

Internet Usage among Nigerian Polytechnic Students and its Impact on Manpower Development: A Case Study Approach

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Abstract

Several studies have been conducted to assess the level of penetration of Internet usage among undergraduate students in Nigerian higher institutions with emphasis on the university systems. Much study has not been done in the polytechnic education systems which this study aims to address. The research, therefore, critically examines the readiness of the polytechnics' students in harnessing the potential of Internet and its overall impact on manpower development. The study adopted a survey method through administering questionnaires and the analysis was carried out using Statistical Package for Social Sciences (SPSS) tool. The study made use of Chi-Square to show the extent in which Internet has imparted manpower development. Our findings show that there is low manpower development due to inadequate deployment of Internet and ICT equipments and infrastructures in the institution of our case study. Further analysis showed that the readiness of the students in adopting Internet facilities is low as a result of inadequate infrastructures and technical know-how among other factors. The paper therefore recommends appropriate policy measures and implementation in order to enhance the adoption of Internet and usage in polytechnics and its resultant positive impact on manpower development for sustainable economic growth.

Keywords: Higher education; manpower development; planning; economic growth.

Introduction

The Internet was the result of some visionary thinking by people in the early 1960s that saw great potential value in allowing computers to share information on research and development in scientific and military fields (Rayport & Jaworski, 2002).

However, the Internet was brought online in 1969 by the Advanced Research Projects Agency (ARPA) of the US Department of Defense and began operations in four locations (Stallings, 2007). Today the number of hosts is in hundreds of millions, the number of users in the billions, and the number of countries participating nearing two hundreds. The number of connections to the Internet continues to grow exponentially.

Specifically, the usage of Internet has now broadened the horizon of the opportunities among institutions of higher learning, giving hopes to members of academic communities to co-operate with their counterparts all over the world as observed by Collis et al. (2002). And it has also been seen as an important vehicle to propel higher education to greater heights as the world moves further into the knowledge economy in this 21st century.

According to Naidoo and Schuttle (1999), there is no doubt that the rate of deployment of Internet technologies in developing countries is low, especially those of sub-saharan Africa. This is particularly noticeable in the area of telecommunication and computing infrastructure, such as telephones, power supplies, development of appropriate electronic networks etc.

Today, the growth in telecommunication infrastructure has led to the increase in Internet connectivity. More people get connected to the Internet through Integrated Services Digital Network (ISDN), Very Small Aperture Technology (VSAT) and even through their mobile phones. The adoption of the Global Systems for Mobile Telecommunication (GSM) in Nigeria has boosted the overall available telephone lines.

Moreso, the insatiable demand for broadband technology is changing the way we work and carry out research today. Broadband is a generic term used to describe a way of connecting to the Internet. It can work through a normal Asymmetric Digital Subscriber Line (ADSL) phone line, through a cable TV connection or through other transmission media such as satellite. A broadband connection can carry much more information than a phone line can and the high speed of the connection means that there is less interference and interruption than is found with a dial-up connection¹. Sending of large files is made possible and access to webpage is instant. Files may be downloaded in the blink of an eye and all this can happen while you talk on the phone or watch TV.

These emerging technologies have strengthened the mandates of teaching and research in Nigeria higher institutions of learning. This study, therefore, investigates the potential in Internet technology deployment in Nigerian polytechnics and highlights its impact on manpower development for sustainable economic growth and global competitiveness.

Background of the Study

The Internet has become a universal library where books, journals, articles and other materials can be sourced right within the confines of individual's homes in any part of the globe. For this reason, the Internet has limitless potential of propelling higher education to greater heights as the world drifted into a technology-driven entity in this century. On the other hand, Jagboro (2003) described the Internet as a rich, multi-layered, complex and ever-changing textual environment.

¹ Journal of "Satellite evolution Asia", (March/April 2010 edition pg 18).

The Internet is now widely used as a medium of communication among researchers and students in higher institutions. For instance, Wilkinson et al (2003) reported that most of the links between universities home pages were associated with information on research or education. Hence, education today no longer begins and ends within the four walls of schools and universities.

In the same vein, Chavez (1997) opined that Internet and computer usage has impacted positively on critical thinking, problem solving, prompt feedback and networking. The strength of Internet lies on the unprecedented growth of its network world wide and its ability to connect computers and several individuals without the barrier of geographical space.

In the recent past, there had been many studies on the deployment of Internet technology in the Nigerian universities. The attention here is towards the critical assessment of its deployment in the polytechnics and their attendant effect on manpower development.

On attaining independence in 1960, the Nigerian government accepted the recommendation of Ashby Commission to expand technical and vocational education to ameliorate acute shortage of technical manpower. The polytechnics were set up with the objectives of developing and encouraging the idea of polytechnic education through students' industrial work and improving on the immediate and long-term prospects of polytechnic graduate (Oloyo, 2008).

Furthermore, it is important to note that the purpose of polytechnic education, as contained in Decree No. 16 of 1985 includes, among others, the provision of technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development; provision of qualified and well-equipped personnel for the improvement and solution of environmental problems for the use and convenience of man; provision of training to impart the necessary skills leading to the production of craftsmen, technicians, technologists and engineers and other skilled personnel who would be enterprising and self-reliant, and to enable men and women to have intellectual understanding of the increasing complexity of technology and the role technology plays in the world as restated by Oloyo (2008).

Polytechnic education, therefore, is expected, according to the National Policy on Education (Federal Republic of Nigeria, 1998), to be the main vehicle for technical education in Nigeria at the tertiary level of education. It is on this background that this paper examines how far Internet deployment has helped in the area of manpower development which is the focal point of this laudable paper. The study is very important because past studies have focused more on institutions such as: universities, colleges, secondary and primary schools. But less emphasis had been made on the impact of ICT on Polytechnic students and their resultant effects on manpower development in Nigeria.

Justification of the Study

According to Awoleye et.al (2008), core research findings have been traced to the universities and the application of these innovations has resulted in tremendous gains to Nigeria's economy. Subsequently, efforts have been geared towards harnessing the potentials of the Internet in facilitating research in Nigerian universities.

The challenge now is that there has not been adequate survey on the level of penetration of Internet usage among undergraduate students of the polytechnics in Nigeria which this research aims at assessing.

The focus of the study is the deployment of the potentials of Internet technology for research and development in Nigerian polytechnics using The Polytechnic, Ile-Ife as our case study. The institution under study is one of the foremost recognized private polytechnic in the southwest that has the approval of the Federal Government of Nigeria to operate as a full-fledged polytechnic. The research tends to investigate the readiness of the institution in the deployment of ICT and its attendant impact on manpower development with the overall effect on national growth.

The main aim of this paper is to examine the challenges that are faced in the process of ICT deployment on manpower development and its impact on economic development in Nigeria. However the specific objectives of this paper are as follows:

- i To ascertain the extent to which ICT relate to manpower development
- ii. To establish the relationship between ICT deployment and some faculties of study in Polytechnics
- iii. To identify the contributions of manpower development towards economic growth in Nigeria

Hence, this paper aims to test that ICT deployment does not affects human capital development and also that the usage of ICT does not influence the development of science-oriented students of the Polytechnic of our case study than the others faculties in the institution. The study also seeks to test that the faculty of students does not influence the contribution of ICT to personal development.

The remaining parts of this paper will be divided into four sections. Section B comprises of the conceptual frame work, while section C entails the theoretical structure and empirical evidence of the study. Section D describes the research methodology, analysis and interpretation of results while the last section concludes and recommends policy options for further research.

Conceptual Framework

It is high time the developing countries like Nigeria arrived at the point where the standard of education should be held firmly especially those in Polytechnics in the area of science and technology particularly Information and Communication Technology (ICT) due to the fact that it plays a vital role in nearly all the phases of educational development process. However, the conceptual framework of this paper is geared towards our audience having a proper understanding of how the deployment of ICT among our polytechnic students can affect manpower development. The underpinning of this study is focused on how ICT can influence the extent to which polytechnic students can develop. Knowing that after undergoing training in our higher learning institutions, students would serve as labor with the understanding that some given amount of output would be expected from them. Although this would require planning in many forms, it is important in the interest of this paper to pinpoint the meaning of the concept of manpower planning development and how it relates to the deployment of ICT in Nigeria among polytechnic students.

Moreso, the study intends to ascertain the relationship that exists between manpower development planning and ICT; to identify how the deployment of ICT affects manpower planning and development; and to buttress the effect of ICT on manpower planning and development in Nigeria. Manpower planning could be seen as planning that consists of putting the right number of people, right kind of people at the right place and right time in doing the right things for which they are suited for the achievement of the nation's development goal as opined by Grinold and Marshall (2007). It should be asserted that manpower or human capital planning does not emanate on its own but rather as an output of ICT adoption in developing economies including Nigeria.

On the other hand, ICT are considered as electronic technologies used for information storage and retrieval. Hence, the development of ICT is partly determined by the ability to establish synergistic interaction between technological innovation and human values. In particular, the rapid rate at which ICT have evolved since the mid 20th century, the convergence and pervasiveness of ICT give them a strong role of development and globalization according to Nwagwu (2006). ICT have a significant impact on all areas of human activity especially to the development of human capital via polytechnic students in Nigeria as opined by Brakel and Chisanga (2003).

Theoretical Framework and Empirical Evidence

In this digital age, Nigeria needs quality manpower. Manpower policy will ensure that computer education is not just for its sake, but also for the benefit of Nigeria and Nigerians. Computer literacy should no longer be optional in schools especially among polytechnic students in Nigeria. This means focusing on increased computer literacy and proper usage of ICT in the country. Education must emphasize the practical aspect of Industrial Training (IT) for sustainable economic growth and development in Nigeria.

The theoretical framework of this paper focuses on the wholesome adoption of education and development policies and its impact on economic and development growth in Nigeria. Hence this paper is based on the work of Schultz (1971), Sakaminta and Powers (1995), Psacharopoulos and Woodhall (1997), which stipulates that human capital theory, rests on the assumption that formal education is highly instrumental and even necessary to improve the production capacity of a population. No wonder economists regard education as both consumer and capital goods because it offers utility to a consumer and also serves as an input into the production of other goods and services. As a capital good, education can be used to develop the human resources necessary for economic and social transformation. It is however pertinent to know that formal education is an output of proper ICT utilization which in turn leads to acquiring quality education and at the end contributes to economic development of a country.

According to Fagerlind and Saha (1997), human capital theory provides a basic justification for large public expenditure on education both in developing and developed nations. The theory was consistent with the ideologies of democracy and liberal progression found in most western societies. Most economists agree that it is human resources of nation, not its capital nor its material resources, that ultimately determine the character and pace of its economic and social development.

In Robert (1991), the significance of education and human capital has been brought out in many studies of economic growth and development. Robert (1991) in his work developed a human capital model that shows how education and the creation of human capital were responsible for both the differences in labour productivity and the difference in overall level of technology.

However, there are several ways of modeling how the huge expansion of education accelerated economic growth and development. According to the literatures, education can be viewed as an investment in human capital and that it also provides positive externalities. No wonder many classical economists argued strongly for governments' active support of education on the ground of the positive externalities that society would gain from a more educated labour force and populace. Smith (1976) viewed the externalities to education as important to the proper functioning not only of the economy but of a democratic society.

Having considered the above background, the question that now comes to the mind is that, has the advent of ICT brought about positive impact on the education of polytechnic students in Nigeria or not? It is pertinent to know that ICT development can be measured in terms of what it does to promote institutional efficiency – enhancing public sector (that is government) and private sector service, and increasing private sector profit. Secondly, human development of the individual citizen – this entails improving access to food, shelter, clothing, education, employment etc of man, woman and child, young and old, illiterate and literate and so on.

The challenge then is to convince decision makers at large that ICT in general if properly deployed enhance educational and personal development in a country especially that of the developing countries like Nigeria. This among others would be verified from the proceeding sections.

Research Methods and Materials

The study adopted a survey method through the means of administering questionnaire among the students of The Polytechnic Ile – Ife, Osun State, Nigeria. Questionnaires were used because they provide access to geographically dispersed samples at low cost, that is, a large population can be surveyed relatively cheaply. In addition, questionnaires provide a high degree of anonymity and respondents have time to think about their answers and consult other sources. In order to administer these questionnaires the study adopted a simple random sampling technique. This is to ensure that there is no bias in the choice of the students that will complete the questionnaires in the Polytechnic of our case study. Responses of the students on the usage of ICT were sampled with a view to establish the relationship between ICT deployment and manpower development.

Method and Materials

This study was carried out at The Polytechnic Ile – Ife, Osun State, Nigeria in 2010 to see the effect of Internet usage among Nigerian Polytechnic Students and its impact on manpower development in Nigeria.

Method of Analysis

The study made use of Chi – Square to show the extent to which Internet usage among Nigerian Polytechnic students and their impact on manpower development in Nigeria through the use of SPSS package because the data in question is qualitative in nature. Moreover because chi –square test are used to determine whether sample data are consistent with the hypothesized distribution.

Sources of Data

This research work relied basically on primary data sources obtained from the respondents answer to the administered questionnaires. However, 405 questionnaires were sent out which 300 were returned duly completed.

The Variable Used

The major findings that would be analyzed in this study are to ascertain the extent to which Internet usage among Nigerian Polytechnic students and their resultant impact on manpower development in Nigeria. To analyze this findings, Internet usage and manpower development would be used.

Decision Rule

Decision Rule: The decision rule is that if the P –value for the calculated chi - square (X^2) is greater than 0.05 i.e. ($P > 0.05$), we accept our hypothesis. This further shows that the deviation is small enough that chance alone accounts for it. On the other hand, if the P-value for the calculated chi – square value (X^2) is less than 0.05 i.e. ($P < 0.05$), we reject our hypothesis, and conclude that some factor other than chance is answerable for the deviation in the observed value to be so great.

Interpretation of Result

The study seeks to test 2 hypotheses (A & B). For hypothesis A, the chi – square value (X^2) = 2.613, with a degree of freedom (DF) = 2. At this value, we ascertained a P-value of 0.10 which depicts that P is greater than the standard level of significance i.e. ($P > 0.05$). Hence we accept the null hypothesis which states that, there is no statistically significant association between *aspect of contribution* and *contribution of ICT to personal development*. Since the P –value is about 0.10 which means that there is a 10% probability that any deviation from contribution of ICT to personal development is due to chance only. Moreover that, the above observed chi-square is not significantly different from expected aspect of contribution which corresponds with Mendals' law.

In the same vein, hypothesis B depicts a chi-square (X^2) value of 3.690, degree of freedom (DF) = 2. Tracing the chi-square value from a chi-square distribution table, we get a P –value of about 0.30, hence $P = 0.30$. This states that P is greater than 0.05 that is $P > 0.05$. The implication from the above P-value is that, there is no statistically significant association between the faculty of students and the contribution of ICT to personal development. This also shows that

there is a 30% probability that any deviation from the faculty of students in our case study is due to chance only rather than there are some other factors that are responsible for manpower development, rather than ICT deployment alone.

Result and Discussion

The P –value derived using the Pearson chi-square value and its corresponding degree of freedom respectively, from the cross tabulation of the faculty of students and the contribution of ICT to personal development and that of cross tabulating the aspect of contribution – versus the contribution of ICT to personal development are 0.30 and 0.10 respectively which depicts a 30% and 10% deviation between the rows and columns respectively.. The above, is an indication that there is a negative relationship between Internet usage and manpower development among the Nigerian Polytechnic Students. However, the results obtained from the collected data does not buttress what the theory stated and which this paper adopted according to Brakel and Chisanga (2003) which states that ICT has a significant impact on all areas of human activities especially in the development of human capital vis-à-vis private Polytechnics students in Nigeria.

This implies that the adoption of ICT in the Polytechnic is very low. Moreso, that ICT deployment and Internet usage is not the only factor that can enhance manpower development rather than; there are some other compounding variables that can also affect manpower development if not properly taking care of to ensure sustainable growth. These other factors according to this study are; inadequate educational development, slow access speed; excessive webpage loading time, high cost of Internet subscription, privacy problem, delay in viewing a web page, persistent power failure and difficulty in finding relevant information. All these among others are the factors that are responsible for inadequate deployment of ICT and its resultant effect on manpower development. And when they are properly put in place, would lead to increase in the percentage in which Internet usage would enhance manpower development for sustainable development in Nigeria.

Conclusion and Recommendation

The study investigates Internet usage among Nigerian Polytechnic students and its impacts on manpower development in Nigeria. In the process of this research work, it was discovered that Internet usage is not statistically significant to manpower development in the private Polytechnic of our case study. Furthermore, that only 10% and 30% probability respectively can be explained or can be accounted for by our independent variables.

Educational policy development tends to play a significant role in enhancing human capital which the data collected has not been able to explain. There is a need therefore for the authorities in charge of the Polytechnics in Nigeria to emphasize on policies that will encourage proper Internet deployment in our higher institutions of learning. This is mainly because our case study does not depict that those students in the institution uses Internet properly as to facilitate manpower development and national growth at large in Nigeria. The government should mandate computer and its proficiency in the curriculum of our Nigerian polytechnics and that a certain level of success in ICT proficiency should be attained before the award of Diploma or certificate at the completion of their program.

Over and above all, this can be made possible according to Awoloye et al.(2008) through adequate training, seminars and organizing of workshop for students. Furthermore, as a measure of support to encourage the private polytechnic owners, the government should assist in providing adequate equipment and infrastructure to enhance its utilization in tertiary institutions especially that of private polytechnics.

The government should further put in place policy that would enhance workable educational reforms with rigorous strategies for their implementation. These reforms are primed to bring about significant changes in the running of educational system. More so, the national policy on education should re- emphasize the need to integrate ICT into the Nigerian educational system, that is, the need to accept ICT beyond computer to the level of infrastructural development in our higher institutions especially in the polytechnics. In particular, professionals should be employed to train students in the best way they can benefit from the deployment of ICT in various institutions in the country. The NBTE should also ensure that a monitoring team is made available that will ensure that institutes of ICT are established, utilized and maintained among our Nigerian polytechnics so that manpower development can be guaranteed in Nigeria.

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