



Teaching Staff Productivity an Hinge on Information and Communication Technology (ICT): A Case Study of Benson Idahosa University, Benin City, Edo State

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Authors' contributions

This work was carried out in collaboration among all authors. Author MSUO structured the study, directed the statistical analysis, overhaul the study and wrote the manuscript. Author OODI managed the analyses of the study, wrote the manuscript and managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The burden and assertion on the quality of teaching staff in an academic institution have recently become a discussion nationwide and this is owned to the claim of a possible huge resources committed to the education sector without commensurate results. The cry for the integration of Information and Communication Technology into school learning curriculum has further raised the hope of people on maximum productivity of teaching staff in tertiary institution. However, this

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seems to be eluding because, institutions on yearly basis produced students who are not ICT oriented, thereby, leaving the general public with question of teacher's productivity. In this paper, a survey was conducted to ascertain the level of ICT compliance on teaching staff productivity and in addition, review was carried out to know if ICT has direct impact on teaching quality as well as proffer possible solutions that could aid smooth delivering of teaching methodology (that is ICT compliance). From the analysis, it was observed that most of the respondents agreed that ICT role has tremendous impact on the quality of teaching staff productivity. The standard value of 2.41 mean showed clearly that the respondents calculated value which is 2.66 empirically demonstrated that the majority of the respondents are in agreement that ICT plays a tangible role in the teaching staff productivity.

Keywords: Productivity; respondents; ICT; quality; empirical and assertions.

1. INTRODUCTION

Information and Communication Technology (ICT) is an electronics revolution that is sweeping across all spheres of human endeavors and has bridged the gap in academic learning as well as other aspects of human existence. Today, thousands of different computer devices can communicate without barrier and this is owned to the handshaking technology (Synchronous and Asynchronous). Several aspects of human being such as capacity building and others have increased due to the knowledge of Information and Communication Technology (ICT). Human endeavors such as business transactions, industrial operations, educational program, research and development have all gained exponential awareness.

Bandele [1] in his view, saw Information and Communication Technology (ICT) as revolution that involves the use of computers, internet and other telecommunication technologies in every aspects of human endeavour. From his view, it is opined that there is hardly any home or organization without ICT. In another view by [2], ICT is seen as a processing and sharing of information using all kinds of electronic devices, an umbrella that includes all technologies for the manipulation and communication of information. To further buttress the above claim, [3] said that ICT as an electronic or computerized device which is directly assisted by human allows the use of interactive materials in a wide range of teaching and learning as well as for personal use.

Education is an emblem which has direct impact on how human being lives, work, think, and socialize. It is accumulative process to which society evaluate morals, value, skills as well as the echo of systematic instruction that facilitate learning. Education is incomplete without

instructors or instructional materials that generate and instill endow basic knowledge, skills, ideals, attitude, lifestyle, and policy into human norms. Education is built around setting objectives and principles. These objectives are usually the roadmap to achieving societal development and attainment. Information and Communication Technology (ICT) in recent times has become formidable tool in the attainment of these objectives.

2. RELATED WORK

Accesses to research material and information exchange across all networks have become so tangible with modern gadgets. Information and Communication Technology (ICT) is a tool which enabled information decentralization across geographical boundaries. ICT facilitates knowledge base exploration and this is often seen from content base sharing. The past few decades saw information relegated to geographical boundaries but this was majorly owned to system engender. The era saw different gadgets communicate separately and handshaking between devices was considered a barrier. However, the era also saw the introduction of Open System Interconnection (OSI) model to which has become the adherence model by all computing gadgets manufacturers and this model over the years has bridged the gap. OSI is a seven layer model which demonstrates how information is to be transmitted between two or more connected devices [4,5]. The OSI model has largely revolutionized data communication thereby giving room for communication exploration in an out of remote area. The integrated platform engineered by the OSI model is the root of modern development in ICT. According [6] ICT cut cross sessional platforms which involves retrieval, storage, translation, access, processing and transmission of information with coherent

devices. ICT provides fundamental guidelines for social and economic blue print which in turn create sustainable and people oriented development.

Mansell and When [7] Noted that ICT is the roadmap to improvement in the buildup of effective and efficient enterprise resource allocation that translates to evidential development in a society. In the other hand, [8] said that ICT role in higher education and development is two folds. They explained that ICT allows countries to systematically grow their economic into a modernized production chain system. ICT role in higher education cannot be overemphasized and this is due to the social economy benefits it brings which are directly felt by all irrespective of age. [8] stressed that outside classroom use, ICT enrich content base curriculum as well as teaching techniques of instructors. In their view, they said research which translates to viable development is one of the merits of ICT and these cannot be ignored by countries that pride on sustainable education. Modern education in 21st century (from primary to higher education) sees ICT as an integral part. Different levels of modern school used ICT to streamline the downfall associated with ancient education. [9] revealed that ICT usage by academics within universities was low. In their remarks, even when it is obvious of its merit to educational sector such as enhancing and facilitating quality teaching but its usage in Nigeria's higher institutions is indeed an issue for concern. [10] in a published paper agreed to the above assertion of [9] by stating clearly that the benefits ICT offers are well understood by academics but several complains on ICT competence has been the issue [8]. In a survey of selected higher institutions in Nigeria, it was observed that the usage of ICT facilities was based on the affordable nature. From the study, it was observed that the institutions survey though, equipped with modern ICT facilities but its accessibility has formed serious setback to the objectives of e-learning. On the same vein, they said though, the institutions could boast of attainment in ICT compliance but many offices, classrooms, laboratories are totally blank to it access which indeed is a worrisome situation. In the submission of [11], it was clarified that time delivering of information is paramount to meeting the set goal of model development and ICT serves as a means of conveying speedy, timely and concise information. [12,13] In separate assertions said the low level of ICT attitudinal change by both policy maker and end users in

various higher institutions is worrisome. To foster rapid ICT usage, the process to attitudinal change must be addressed from grassroots. Attention should be given to training and retraining of staff so as to instill the mentality of not just the benefits of ICT but as production chain of modern development. [14] showed that ICT plays vital role in the efficiency of educational process by way of study and teaching methodology reengineering which cut across students learning assessment and other aspects that facilitates as well as enhance relationship between students and teachers [15]. Bringing to the understanding of readers, [16] reported that ICT has found an increasing factor in its daily usage by teachers.

Holdich [17] showed that ICT facilities such as computer base programs for marking student's script could save time teachers used in marking script. This claim by [17] has indeed been demonstrated in modern method of administering examination and marking script. The Computer Base Test (CBT) currently being conducted by Joint Admission and Matriculation Board (JAMB) and General Studies Test (GST) Computer Based Examination (CBE) conducted by Benson Idahosa University, Benin City is an attestation to the postulation of the above claim by Holdich [17]. [18] identified the role of ICT in teacher's innovative enhancement. [15] showed that on the average, teachers agreed to the fact that ICT has increased student and classroom academic performance.

3. EDUCATIONAL EVOLUTION

Education evolution has been a long term process in Nigeria. Prior to modern educational method or evolution, Nigeria had long found a means of ensuring transmission of knowledge from one generation to another. Though, faced with enormous barriers but several mechanisms such as observation, experience, authority and mentorship have been adopted thus far which indeed has yielded positive remarks since the era of the forefathers. This long age method of teaching is known to be the old method of teaching [19,20]. According [21] 'Traditional Education is a direct order by teacher to students learning through memorization as well as other techniques which increase mental ability/capacity needed for problem solving. This method develop students quest for critical thinking ability to problem solving as well as risk awareness [22]. Notwithstanding, education in Nigeria is in a transition state and knowing fully that education evolution is more of process than a method the

old method has yielded to the evolutionary process of transformation which gave way to modern and technological impact in the educational institution in Nigeria [23,24].

Early education in Nigeria saw the informal education where learning was done by observation; a typical example to the informal learning is learning method used in raising children at home. This could be via authority, observation, practice etc. this method, though still in use in modern education, however, so much emphasis has been placed on the formal education which to the author has attributed to the increase in social vices affecting the Nigeria as a country. Many parents have left the duty of parenting to school teachers and administrators with the idea of getting the best out of them but this is necessary not true because, no matter how good formal education can be it still would not solve the problem of informal education. Notwithstanding, the advancement in education has created better methods of teaching in all levels of education. Formal education that used to be stereotype in the late 80s and 90s has suddenly become dynamic as a result of Information and Communication Technology (ICT) introduction to all levels of educational institution [25,26].

4. ICT AND TEACHING STAFF

Naturally, Information and Communication Technology effective output is centre on the task accomplishment as well as its application. It serves as a means of improving efficiency in all aspects of human endeavour not necessary academic institution only. ICT for more than a decade has become a vehicle for data transmission and storage. There are more to ICT expansion in world view; its facility has gone beyond world expectation to more profound areas such as data exchanging, teaching, distance learning, electronics learning, all round research storage, artificial intelligence etc [27,28]. However, in spite of these attributes associated with ICT there are few questions and answers that have negated the speedy progress and its impact on teaching staff and these are:

4.1 Competence

It is true that one can get job by way of merit and luck but in Nigeria it has been observed to be the closeness to prominent members of the society but in spite of this, the only thing that keeps one on the job as well as the right book of the employer is the competence nature of employee.

Computer as a field could be seen as complex when not with the technical ability. However, computer as electronics machine has an embedded guidelines or procedure of usage which teaches users what to do. In this paper, we shall define competence as the extra ordinary ability to carry out an assigned duty with little or no supervision. But in case of computer competence is being able to carry out holistic function of computer operation and it is based on this premise that computer users are classified as follows:

- i. Application Oriented User
- ii. Goal Oriented User
- iii. Computer Oriented User

These classifications centered on different types of users; while some do well with the computer applications some use it to attain a goal base on the specific nature of the set goal, but most versatile among the users is the computer oriented user which specialized in all aspects of the computer usage. Teacher competence in computer is the ability to use ICT curriculum base to not only communicate to the students but also to teach and enhance their academic capabilities via relevant research instruments [29].

4.2 Effectiveness

Being competent using computer to teach student is one aspect, it is also another aspect to be effective and competence and computer competence does not translate to effectiveness. However, it is a thin line separating them. Effectiveness using ICT means the technical translation of ICT competence to timely and perfect delivering of the desired goal of ICT integration into educational curriculum. Teachers that are not effective with assigned courses will definitely have issue with using ICT to aid the knowledge to students. Directly or indirectly, teacher's effectiveness is proportional to the level of teaching quality [30].

4.3 Experience

This is one aspect of teaching that cannot be acquired through class room or certificate. To a large extent, experience is regarded as one of the best teachers because it enables first hand information of what the nitty-gritty of the task ahead. Though, there is no collaboration of its influence in the use of ICT but it could be ascertained that teachers that have use ICT in one way or the other will likely know the impact on students compare to a teacher without ICT

teaching experience. So, Teachers experience is significant and proportional to use of ICT facilities. Computer is one of the ICT facilities and any teacher in 21st that still could not use it neither have experience or whatsoever because those with the experience find it easy with the integration of ICT based curriculum [31].

4.4 Motivation

Motivation is one key aspect of ICT class room or curriculum based integration that has over the years met brick wall. While many academic institutions focuses on the acquisition of ICT facilities to enhancing students capacity in learning little attention is geared towards staff motivation on the use of ICT. Research had it that many schools abide with the policy of ICT based students education but has failed in the area of staff motivation on the need to making it part of the daily teaching. No company succeed without motivation, some organization used several means such as additional incentives to encourage staff for maximum productivity. It may be argued that the use of motivation and ICT usage has no correlation. This claim might not be true base on the fact that for every task motivation is a catalyst to achieving the desire result. Teachers with ICT ability needs encouragement because it foster the zeal to continue teaching students and integrating all aspects of ICT in classroom [32].

5. ANALYSIS OF SAMPLE DATA

To ascertain the role of ICT on staff productivity at Benson Idahosa University, a descriptive survey research was used. It involved a one-time observation of independent and non manipulated variable. Data collected was organized in line with standard best practice, in this research; direct survey was used to give clear information as well as answers to the role of ICT on staff productive. Furthermore, the study was narrowed down to Benson Idahosa University Staff because it is believed that the result from the survey will show the true picture of ICT role on her staff enhancement. To do this, a population of both male and female teaching staff of Benson Idahosa University was sampled. It was observed that the number of teaching staff in Benson Idahosa University is between the ranges of 300 to 400.

5.1 Research Instrument

This study employed questionnaire as the instrument for direct data collection and it was

made up of several sections that enabled all rounds data gathering as well as vital information from respondents on the role of Information and Communication Technology on teaching staff productivity at Benson Idahosa University.

5.2 Method of Data Analysis

Data collected from the field was analyzed using SPSS to ascertain the frequency distribution, mean, standard deviation. While the hypothesis was tested using T – test at a 0.05 level of significance.

5.3 Decision Rule

A mean value of 2.41 was used as the basis upon which results were accepted for the purpose of generalization. The decision rule is in line with the three methods used to specify a good bet of any case.

6. RESULTS AND DISCUSSION

The presentation of results of the study was analysis using SPSS as the analysis tool. Percentage, frequency distribution and mean which were based on the total number of response obtained from the respondents were evaluated and tabulated accordingly. At the end of the analysis, conclusions were drawn on the basis of the obtained data from the respondents on the role of Information and Communication Technology on teaching staff productivity at Benson Idahosa University.

6.1 Research Respondents

The Table 1 showed the analysis of data obtained through the questionnaires as well as the distribution and retrieval of questionnaires.

Table 1 showed that 100% response rate was obtained from the respondents. What this means is that the total number of questionnaires distributed as indicated in Table 1 were completed and returned.

6.2 Research Question 1

The section focused on extent of ICT role in Benson Idahosa University (BIU) with one to six sub questions. The answers obtained were analyzed using the mean, and standard deviation benchmark set in the decision rule in Table 1.

Table 1. Number of respondents

S/N	Institution	Number of questionnaires issued	Number of questionnaires retrieved
	Male Academic staffs	100	100
	Female academic staffs	100	100
Total		200	200

Table 2. Extent of ICT role on staff of BIU

S/N	Items statement	\bar{x}	SD	Remark
1.	BIU academic staff are compliant with ICT	2.47	1.06	Disagree
2.	BIU academic staff are efficient with the use of ICT	2.39	1.05	Disagree
3.	BIU academic staff are resourceful with the use of ICT	3.90	1.44	Agree
4.	ICT is used on a regular basis by the academic staff of BIU	2.47	1.20	Disagree
5.	BIU teaching staff are computer literates	2.41	1.05	Disagree
6.	BIU academic staff have access to computer and other ICT Device	2.30	0.94	Disagree

Key: Mean \bar{x} , Standard Deviation (SD)

As indicated in Table 2, it showed that item 3 is the only area the staff agreed following the 2.41 benchmark. From the Table 2 it could be said that Benson Idahosa University (BIU) has failed to comply fully with the educational policy of ICT integration into classroom activities.

As indicated in Table 3, majority disagree with the statement in the item description on how the use of ICT at Benson Idahosa University affects staff productivity. This indeed is not good for a modern education because at the receiving end are the students.

6.3 Research Question 2

Question sort to know how the use of ICT affect Benson Idahosa University Staff productivity. The collected answers span through items seven to fifteen and were analyzed as stated in Table 3.

6.4 Research Question 3

This section aimed at knowing the impact of ICT on teaching staff productivity at Benson Idahosa University and the data collected from items sixteen to twenty three were harmoniously analyzed as showed in Table 4.

Table 3. ICT effect on staff productivity

S/N	Items statement	\bar{x}	SD	Remark
7	BIU academic staff are competent with the use of ICT	2.37	0.93	Disagree
8	BIU have adequate qualified ICT teaching staff	2.47	1.06	Disagree
9	BIU ICT laboratory is not up to standard	2.45	1.07	Disagree
10	BIU ICT laboratory are up to date	3.15	1.09	Agree
11	The use of ICT has affected academic staff productivity	2.41	1.05	Disagree
12	The quality of ICT facility has positively affected the standard of teaching and learning.	2.43	1.22	Agree
13	BIU academic staff are passionate with the use of ICT	2.49	0.93	Disagree
14	BIU academic staff evaluate the teaching and learning of ICT	2.38	1.06	Disagree
15	BIU teaching staff perform poorly in the teaching-learning of ICT	3.47	1.14	Agree

Key: Mean \bar{x} Standard Deviation (SD)

Table 4. Impact of ICT on staff teaching ability

S/N	Items statement	\bar{x}	SD	Remark
16	Are steps being taken by BIU teaching staff to ensure effective use of ICT in teaching-learning	2.45	1.07	Agree
17.	The use of inefficient ICT academic staff affects the teaching-learning productivity	2.37	0.93	Disagree
18.	ICT enhance curriculum content and teaching methods of teacher	2.47	1.20	Agree
19.	BIU staff are motivated with a good teaching condition	2.41	1.05	Agree
20.	BIU staff enjoy good conducive teaching-learning environment	2.42	0.92	Disagree
21.	BIU staff poor attitude towards ICT affects teaching-learning productivity	2.33	0.97	Disagree
	Lack of funding affects the impact of ICT productivity in teaching-learning process	3.71	1.33	Agree
22.	BIU staff do not participant in ICT training	3.53	1.17	Agree
23.	Steps are been taken by BIU teaching staff to ensure effective use of ICT in teaching-learning			

Key: Mean \bar{x} , Standard Deviation (SD)

It was observed from Table 4 that staff agreed with the findings of Table 3 which is ICT effect on staff teaching ability because majority agreed that there is a serious impact on staff teaching ability at Benson Idahosa University.

6.5 Research Question 4

Staff motivation is a factor in any establishments and this section examined the extent of ICT on

staff productivity advancement and motivation at Benson Idahosa University? The section examined 24 to 37 items and analyzed them as indicated in Table 5.

Table 5 indicated that a large number of respondents agreed with the statements in the item description on the extent of advancement and motivation of the use of Information and Communication Technology on teaching staff productivity at Benson Idahosa University.

Table 5. ICT motivation of staff productivity

S/N	Items statement	\bar{x}	SD	Remark
24.	BIU environment encourage ICT compliance of all academic staff	2.30	0.94	Disagree
25.	BIU academic staff are professionals in the use of ICT	2.41	0.92	Disagree
26.	BIU teaching staff seldomly use the ICT facility available	4.00	1.50	Strongly Agree
27.	BIU teaching staff are not motivated with the use of ICT teacher	3.96	1.49	Agree
28.	BIU academic staff find the use of ICT very complicated	3.01	1.09	Agree
29.	The age of some academic staff is a challenge in the use of ICT	2.32	1.06	Disagree
30.	BIU academic staff are consistent with the use of ICT	2.86	1.00	Agree
31.	BIU academic staff are skillful with the use of ICT	2.62	1.20	Agree
32.	There are ICT facilities for lecturers in the office	2.01	1.04	Disagree
33.	BIU ICT facility is available for teaching staff	2.12	1.05	Disagree
34.	BIU has ICT laboratory	2.50	1.24	Agree
35.	BIU has very good ICT facility	2.47	1.06	Disagree
36.	BIU academic staff makes use of ICT in advancing academic activity.	2.39	1.05	Disagree
37.	BIU academic staff fined the use of ICT effective in research.	3.19	1.11	Agree

Key: Mean \bar{x} , Standard Deviation (SD)

7. CONCLUSION AND RECOMMENDATIONS

Sensing the benefits of ICT in modern education and its role in societal development this paper therefore has demonstrated the role of ICT on teaching staff productivity at Benson Idahosa University to a certain degree which is in line with the above findings. As showed above, ICT role on teaching staff productivity could be seen from the centered value of the mean index of 2.66. The mean index showed clearly the agreement when placed side by side with 2.41 mean value benchmark set above. On the basis of the results obtained it is therefore imperative to know that irrespective of educational level, ICT is an essential tool in modern education because it fosters staff productivity. In addition, this work identified that the elements showed in Section 4 of this paper (ICT and Teaching Staff) such as motivation, competence, efficiency and experience have direct link to the use of ICT in enhancing teaching staff productivity. The lack of concentration on the staff ability to use ICT by school owners and administrators has largely translated to the drawback of ICT on teaching staff productivity. This is in line with the theory of [33] which stated that Readiness to learn is dependent upon maturity and experiences. In another work by [34], it is understood that learning environments require staff to use their prior knowledge and experience to formulate new and adaptive concepts in learning.

From the responses as tabulated in Table 4, item 23 showed distinctively serious efforts being made to integrate ICT into the process of academic activities. Consequently, it is empirically and profoundly cleared that the role of ICT affects teaching staff productivity at Benson Idahosa University. This is collaborated by [35] in a work titled "Which Factors Obstruct or Stimulate Teacher Educators to Use ICT innovatively" and knowing fully the associated role ICT plays in enhancing the development of the educational institution it is therefore necessary to conclude that Information and Communication Technology at Benson Idahosa University must be given critical attention for productive teaching and learning as well as enriching the effectiveness of staff productivity.

Based on the foregoing, the following recommendations are made:

1. From the study it is empirically cleared that there are some levels of ICT facilities at

Benson Idahosa University but its full integration across Faculties and Departmental teaching staff has been worrisome and it is on this premise that this work recommends that full integration of ICT into curriculum based teaching by teaching staff is highly imperative to enhancing the teaching process of staff productivity.

2. The survey though, gave the blueprint to the ICT skillful nature of teaching staff but areas such as motivation as well as the principle of best practices has eluded the school teaching staff in recent times and effort should be made to create and instill on teaching staff the value of retraining because it is believed that this will go a long way to improving teaching staff productivity at work.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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