

# 1 THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN 2 THE ACADEMIC PERFORMANCE OF UNIVERSITY OF BENIN POST GRADUATE 3 STUDENTS 4

5 **Abstract:** *Student performance has several elements, but most significant is the role the*  
6 *information and communication technology plays. The performance of students in modern*  
7 *education is quite different from the traditional method used over the past decades. ICT is a*  
8 *revolution and has indeed bridged the divided world of information into single entity; it has*  
9 *further enhanced the resourcefulness of students in various academic institutions around the*  
10 *globe. This study is a fact finding into the role of ICT, as it relate to students performance in*  
11 *modern education as against the traditional method of research in time past. University of Benin*  
12 *(Uniben) Post Graduate Students were used to solicit information required to assist the decision*  
13 *of this research. From the findings, it was observed that there is a significant difference between*  
14 *the users and non users of ICT facilities on academic activities. Table 1, 2, 3, and 4 as tabulated*  
15 *below shows the positive impact of ICT on student performance. The testing, t-test was 1.96 at*  
16 *0.05 significance level, while the t-value was 4.677 and this to a large degree shows clear*  
17 *distinction to viability of the impact of ICT on the positive performance on students.*

18 **Keywords:** *Impact, Research, Revolution, Concept, Role, Empirical and internet*

## 19 I. INTRODUCTION

20 In recent times, Information and Communication Technology (ICT) has changed the scope of  
21 learning. Just recently, the call for ICT link to student performance has become an extensive  
22 debate by both academics and information technology (IT) personnel. The last decade has seen a  
23 shift from the traditional method of learning to more digitalized method and these are seen from  
24 the ICT penetration in recent times. Research into ICT role has unveiled the added value in  
25 classroom activities as well as student performance. Some literatures have looked at the impact  
26 of computer usage. However, since the internet revolution, there have been literatures on its  
27 impact in online activities and this includes the educative online platforms, digital devices, use of  
28 blogs, wikis, games, social media etc. From empirical studies, some of the literatures are  
29 divergent in both opinion and propounded theories. While some literatures showed that there is  
30 no evidence of the key role for ICT in higher education, others showed a real impact of ICT on  
31 the student s' performance [1, 2, 3, 4, 5, 6, 7]

32 Empirically, the academic field is becoming more demanding in modern society. As knowledge  
33 is expanding in scope and size, modern technologies placed a huge body on the deployment of  
34 Information and Communication Technology (ICT) in learning. ICT creates opportunities for  
35 communication within and outside academics and also creates new approach for learning. The  
36 day to day usage of ICT facilities creates the enable environment to acquiring the needed skills  
37 that facilitates learning and other social benefits. ICT is an important tool for promoting  
38 inclusive learning [8]. Access to ICT within academic institution is the gate way to the  
39 availability of scholarly materials in an institution [9]. However, not only does ICT saves time  
40 the endless benefits it provides in managing cost and others such as speed processing, distance

41 learning possibility, students assessment achievement, administration of examination via  
42 Computer based Test (CBT) cannot be under estimated [10].

43 The sessions are arranged as follows: Session 2 reviewed ICT as a change agent, session 3  
44 looked at ICT and the academic staff, session 4 examined the role of academic institution and  
45 ICT, session 5 elucidated on the research approach while session 6 discussed the result findings.  
46 Session 7 is the conclusion.

## 47 **II. RELATED WORK**

48 The advent of ICT has showed within a short time that ICT has become one of the blocks of a  
49 modern society education. This in many ways has made some countries now regarded as ICT  
50 giant to be change agent in modern education and has created a basic for mastering its basic  
51 concepts as part of the core purpose of education [11]. The emergence of ICT has indeed  
52 transformed the activities of its end users as well as setting up standard for globalization.  
53 According to [12], the introduction of ICT into secondary school curriculum in India has  
54 tremendously improved students performance in chemistry. In recent times, there has been  
55 overwhelming support locally and internationally on the use of ICT to delivering learning  
56 activities [13].

57 [14] Defines ICT as a collection of technical devices and resources which are use to transmit,  
58 store, manage information. The literature also explained that the utilization of ICT as instructive  
59 process has been partitioned into two classification:

60 (i) ICT for Education: this involves the development of ICT particularly for teaching and  
61 learning purpose

62 (ii) ICT in Education: this is the adoption of ICT in the instructional process [13].

63 Various studies from empirical analysis have showed that there has been constant increase in  
64 sophisticated and enabling technologies. Hence, technological literacy is a must requirement for  
65 all purposes. The increase in the growth of ICT is directly proportional to the life style of modern  
66 society children. Furthermore, 21<sup>st</sup> century has witness tremendous impact in Information and  
67 Communication Technology (ICT). This period has helped to bridge the divided world into one  
68 single entity thereby leading to inflow of experience to economizing the academics achievement  
69 of Lecturers and students. ICT resources in teaching and learning environment have found to be  
70 very central to information access, spreading and dissemination of educational data.

71 According to [15, 16], internet is a worldwide system of computer networks, a network of  
72 network in which users at any computer can, if given the permission to access from any other  
73 computer (and sometimes talk directly to user at other computers). The Advanced Research  
74 Project Agency Network (ARPANet) in 1969 by the US Department of Defense came up with  
75 the internet and this was attributed to military intelligence and research [17]. Internet is regarded  
76 as one of the major revolutions in ICT and has affected the world positively. Though, it has its  
77 negative side but the positive sides outweigh the drawback associated with it. In 1973 the

78 protocol suit was developed for use and the outcome of the research effort gave birth to what is  
79 known as Transmission Control Protocol/Internet Protocol (TCP/IP) [16].

80 [18] Made known that the internet penetration got to Nigeria in 1991 when the e-mail services of  
81 the internet was introduced through dial- up. Then, access to the internet was through Cyber  
82 Cafés connected to Internet Service Provider (ISPs). As captured by [17], in 1995 the Regional  
83 Information Network for Africa (RINAF) commenced internet services at the Computer Science  
84 Department of Yaba College of Technology and this was through the Nigeria Postal Service  
85 (NIPOST) in collaborative effort with Rose Clayton Nigeria Limited. The World Wide Web  
86 (WWW) became available in 1996 and its full access became obvious in 1998. From what the  
87 ICT offers, it is a known fact that all universities around the globe are connected to the internet  
88 for the sole purpose of research, information dissemination and adding to the knowledge base of  
89 the society as well as creating up to date information. ICT is a term for information and  
90 communication technology, the technology is the integration of telecommunications (telephone  
91 lines and wireless signals), computers and other necessary enterprise software that drives it.

### 92 **III. THE ICT AND ACADEMIC STAFF**

93 The performance of academics is centered on research breakthrough and several elements  
94 contributed to the breakthrough measurement. The measurement of literature includes experience  
95 from workshops, conferences attended and scholarly work from well know journals. Modern  
96 school lecturers are assessed on the usage of ICT because all things within academic institution  
97 revolve around ICT. Internet plays a major role in a research community. Academics broaden  
98 knowledge skill via the materials retrieved from the internet and many lecturers within academic  
99 institution hardly visit the library because the internet accommodates millions of library  
100 published articles. [19] In a work published by [20] said the convergence of computers and  
101 telecommunications technologies has made possible the activities which were considered  
102 impossible in the past. Internet facilities such as the e-mail, FTP, www, Talnet, mailing list etc  
103 can be used to enhance teaching and research. The facilities brings to academic staff up-to-date  
104 information in research community

105 The increase in teaching and research output of academic staff is traceable to the services  
106 rendered by the internet. The internet enables academics download several material from  
107 different web sites [21, 22, 23]. There are impacts in the academic staff performance and this is  
108 based on the quality of papers in the 21<sup>st</sup> century [24]. [21] In a comparative study between  
109 Babcock University and Covenant University showed that the increase in research output with  
110 internet services is more than the era before the internet. [25] In a study showed that the use of  
111 electronic literature by University of Finland improved their work in many ways. Because it  
112 provides access to literatures and has direct correlation to the content and quality of scholarly  
113 work

114 [26] Reported that the internet contributes positively to reference work of many library  
115 professionals and enhance effectiveness and efficiency. [27] Showed that electronic journals are

116 strongly accepted in Netherlands by scientist and social scientists and have serious impact on  
117 research work [21].

118

119

#### 120 **IV. THE ACADEMIC INSTITUTION AND ICT**

121 ICT in schools is a variable tool which enhanced educational content and learning techniques. It  
122 is a process that helps in the interactive instructive mechanism for teaching and bringing to the  
123 understanding of students. Applications and other add on devices provides attractive learning  
124 atmosphere for learners. Furthermore, the fundamental principle of ICT is on its access  
125 availability without necessary going through bureaucratic process of the traditional libraries. ICT  
126 provides easy to use mechanism without much burden on people and this flexibility has made  
127 many scholars embraced it positive impact so as to change the needed drawbacks in academics.  
128 Indeed, many homes in the developing countries like Nigeria are not privilege with the use of  
129 ICT. However, both secondary and higher institutions now provide the opportunity for people  
130 with the facilities and this create the opportunity for them to use and learn. Modern Schools have  
131 made it possible for people to know how ICT function and they do this through the acquisition of  
132 ICT facilities [28].

##### 133 **a. Teaching and ICT**

134 Teaching via ICT can be interesting and this is because it offers a comparative and competitive  
135 advantage over the traditional method of teaching. However, this cannot be possible if both  
136 students, teachers, policy makers fails to negate the drawback associated. ICT can do better if the  
137 factors that influence the drawbacks are discontinued. Notwithstanding, factors such as attitude,  
138 competence, self development, experience, policy as well as others that could affect the  
139 deployment of ICT in teaching are controllable. In a survey conducted by [29, 30] showed that  
140 the above factors could be classified into

141 (1) Teacher-level barriers

142 (2) School-level barriers and

143 (3) System-level barrier

144 These three levels are the basic of all barrier levels associated with none deployment of ICT in  
145 teaching or classrooms. The three must be able to harness for a smooth delivering or deployment  
146 of ICT in teaching.

##### 147 **b. Student Performance and ICT Correlation**

148 Internet has brought a revolutionary change in today's world and has increase the scope and size  
149 of all academics. The idealistic nature of ICT in teaching is to boost student's performance and  
150 from the literature reviewed, it can be said that ICT has contributed immensely to the academic  
151 performance in both ways (directly and indirectly). Prior to the emergence of internet most of the

152 traditional libraries were not habitable. In a school of over three million (3,000,000) students the  
 153 library has a capacity of less than five hundred (500) students. So, the competition for space by  
 154 students and lecturers was overwhelming. Availability of resource materials was another course  
 155 for concern. The internet via e-library has helped to mitigate if not eliminate these difficulties  
 156 associated with the traditional method and has led to excellent performance on the part of the  
 157 students. Lecturers can now download or get materials as at when needed and replicates the  
 158 study on students [19, 21].

## 159 V. RESEARCH APPROACH

160 The investigation was hinged upon on survey method. The target population for the study  
 161 comprised Postgraduate Students of the University of Benin (Uniben) who registered with the  
 162 University Internet Facilities for the 2017/2018 academic session. The students figure stood at  
 163 3877 students. The random sampling technique was used to select 300 students that formed the  
 164 sample for the study. The instrument used for the collection of data was the questionnaire. A  
 165 structured questionnaire was designed in line with the basic objectives of the study. The  
 166 questionnaire for the research consists of both optional type and statements in a 4-point scale, a  
 167 high percentage of about 268 about 89% were completely and correctly filled. They were  
 168 received and found usable, the collected data was analyzed using the SPSS for statistical analysis  
 169 and frequency and percentage was used to present result for the research questions raised while  
 170 the t-test analysis was used to test hypothesis.

171 **Table: 1**Frequency of Postgraduate use of Uniben Internet facilities

Used	Daily	More than once a week	Weekly	Occasionally	Total
0(0%)	107(39.1%)	76 (27.7%)	34(12.4%)	217 (79.2%)	
Never Used (20.8%)					57
<b>Total (100%)</b>					<b>268</b>

172  
 173 From the Table 1, it was observed that total of 217 (79.2) respondents make use of Uniben  
 174 Internet facilities at different levels while 57 (20.8%) respondents never use the Uniben Internet  
 175 facilities. One can therefore infer that the Uniben Internet facility enjoys very good patronage by  
 176 the postgraduate students.

177 **Table 2: Purpose of use of the Uniben Internet facilities**

### Purpose of use of the Uniben

Internet Facilities	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Assignment	138(50.4%)	102(37.2%)	24(8.8%)	10(3.6%)	268(100%)
Examination	114(41.6%)	95(34.7%)	45(16.4%)	20(7.3%)	268(100%)
Expansive reading	137(50%)	89(32.5%)	26(9.5%)	22(8%)	268(100%)
Social Media	28(10.2%)	31(11.3%)	191(69.7%)	24(8.8%)	268(100%)
Download for re-use	99(36.1%)	71(25.9%)	62(22.6%)	42(15.3%)	268(100%)

178 From Table 2, item 1 has 138 representing 50.4% of respondents who strongly agree that  
 179 assignment is the reason for using internet, 102 which is 37.2% also agree to that notion, 24  
 180 representing 8.8% of the respondents disagree that assignment is the only reason for entering  
 181 internet, while 10 representing 3.6% strongly disagree. It is equally observed that all the items  
 182 above, with the exception of chat with friends on social media, received positive responses. It  
 183 therefore shows that most students perceive that the purpose for using the Uniben Internet  
 184 facilities is for academic work. This could be because those who had used the resources  
 185 discovered that the managers of the Uniben Internet facilities programmed it in such a way that it  
 186 grants the students access for academic purposes only.

187 **Table 3: Perceived benefit of using the Uniben Internet facilities by students**

Influence of Uniben Internet facilities	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Use of Uniben Internet facilities has aided my reading ability	96(35%)	108(39.4%)	46(16.8%)	24(8.8%)	268(100%)
Use of Uniben Internet facilities has influenced my research ability and therefore aid me in doing assignment	110(40.1%)	121(44.2%)	30(10.9%)	13(4.9%)	268(100%)
Use of Uniben Internet facilities has distracted me from my studies because of the. many social media available in it	28(10.2%)	26(9.5%)	136(49.6%)	84(30.7%)	268(100%)
Use of the Uniben Internet facilities aided my understanding of courses taught	124(45.3%)	89(32.5%)	48(17.5%)	13(4.7%)	268(100%)

188  
 189 From Table 3, it is observed that most respondents affirmed to the benefits of using the Uniben  
 190 Internet facilities while lesser number 136 (49.6%) and 84 (30.7%) of the respondents consented  
 191 to the Uniben Internet facilities being a distraction, in their perception. It is possible majority of  
 192 this number are from those who had not used the Uniben Internet facilities before. It therefore  
 193 shows that academic activities of many students have been positively impacted upon by the use  
 194 of the Uniben Internet facilities

195 **Table 4: t-test analysis of variance difference in performance of postgraduates who use the**  
 196 **University of Benin internet facilities and those who do not make use of it in their academic**  
 197 **activities.**

Variables	N	Mean	SD	df	r-cal	p-value
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Users	217	78.783	10.54			
				272	4.677	1.96
Non users	57	85.930	9.15			

198 P<0.05

199 Table 4 shows that the t-test was 1.96 at 0.05 level of significance while the t-value was 4.677.  
 200 The Null hypothesis is therefore rejected. Hence, there is significant difference between the  
 201 performance of users of the University of Benin internet facilities and those who do not use it, in  
 202 their academic activities.

203

204 **VI. FINDINGS EVALUATION**

205 The study examined the impact of ICT on the academic performance of postgraduate students in  
 206 University of Benin. From the Findings, it can be said that most postgraduate students of the  
 207 University of Benin make use of the Uniben ICT facilities. The study has also demonstrated the  
 208 perceptions on the use of the ICT facilities but majority is of the view that is mainly for academic  
 209 purposes as against social media use. Furthermore, the findings showed that most students  
 210 agreed that the use of the facilities has impacted positively on student's academic performance.  
 211 From the above analysis, there is corroboration of the findings to that of the views of [31] on the  
 212 effects of ICT on students' academic achievement. ICT was found more effective on students'  
 213 academic performance when in contrast with the traditional teaching facilities. The results of the  
 214 findings are also consistent with [12] who found that ICT has positive impacted on student  
 215 scores on secondary school level. Similarly, [32] in a published work showed that ICT  
 216 integration into teaching and learning impact student performance positively in science subjects.  
 217 In the same way, [33] said that ICT has positive effect on students' scores. Similarly, [34]  
 218 explained that students performed better when taught through ICT as in contrast to those who  
 219 were taught via the traditional approach. ICT has come to bridge the overwhelming drawback  
 220 associated with the traditional approach of teaching thereby creating exciting atmosphere for  
 221 students to do better in academics performance. The analysis from the Uniben Postgraduate  
 222 students is an attestation to the positive revolution of ICT among students and this is not just for  
 223 the postgraduate students only but across board.

224

225 **VII. CONCLUSION**

226 Internet and other Information and Communication Technology facilities so far deployed to the  
 227 teaching process of education by institutions have had both positive and negative impacts.  
 228 Meanwhile, the negative influence is considered not to be an issue considering the scope of this  
 229 paper. The premise to which this paper is on the impact of academic performance of the  
 230 University of Benin Postgraduate students and to a setting degree, this paper has unveiled that  
 231 there is a relationship between student performance and ICT. Though, many could argue that  
 232 early education in developing country like Nigeria had well defined moral standard than the era  
 233 of information and communication technology integration with education but this cannot rule out

234 the fact of the positivism associated with ICT classroom integration because it bridged the  
235 divided world into a global village. Information remains a tool for national development and  
236 anything that can aid quick access to it should be considered on merit rather than the drawback.  
237 Conclusively, the findings by this work demonstrated that the postgraduate students of  
238 University of Benin (Uniben) have had better performance in academics with the integration of  
239 ICT in academic activities. Hence, its sustainability should be encouraged by all tertiary  
240 institutions and policy makers.

241

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UNDER PEER REVIEW