

1 Ghanaian Tertiary Students' use of ICT

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4

5 **Abstract**

6 The use of ICT by Ghanaian tertiary students was investigated. Information on possession or
7 access to laptop, desktop, smart phones and cell phone (not smart) and the use was obtained
8 from 1940 students with a structured questionnaire. Prevalence of ownership/access was 85.1

9

10 **Index terms—**

11 **1 Introduction**

12 The use of Information Communication Technologies (ICTs) in education is growing in all parts of the world
13 (Anderson & Kanuka, 2003). Africa have also witness the development of these ICTs in various sectors including
14 education. These ICTs are increasingly becoming prevalent in our society, and consequently, they entail new
15 conditions and opportunities for the teaching and learning processes. On the one hand, the new generation of
16 students enters the tertiary level of education with a strong command of competencies to communicate via ICTs,
17 a situation which obviously facilitates the introduction of such resources as learning supports (Liccardi et al,
18 2007).

19 ICTs has positive motivation impact on students and has been useful for promoting education by open and
20 distance learning courses in low-income countries especially the sub-Saharan Africa (Mwilongo, 2015; ??UNESCO,
21 2004). Several reports on the integration of ICTs into teaching and learning indicated that the embedding process
22 depends on the teacher, the subject, the students and the cultural context (Adebayo, 2008; Yuen, Law, & Wong,
23 2003; Sutherland et al., 2004; Khan, Butt, & Zaman, 2003). Succinctly, the use of ICTs in learning includes but
24 not limited to students' access to tutorials online, carrying out assignments, PowerPoint presentations, graphical
25 illustrations, tables, texts, statistical analyses and access to diverse sources of information. It also promotes
26 interaction among students in sharing ideas, information and publications among others. In addition to the
27 educational use of ICTs, it is also used by students for social interaction and leisure (Selwyn, 2008 ??013). These
28 empirical studies were conducted in Europe, Asia, and USA. There is paucity of information on the use of ICT
29 by tertiary students in Ghana and the gap needs to be filled.

30 The use of ICTs in libraries and tertiary institutions in Ghana is steadily increasing (Addy & Ofori-Boateng,
31 2015). However, the extent of the social use of ICT for leisure-related activities by tertiary students in Ghana
32 is yet to be assessed. Although Slater & Kwami (2005) mentioned the likely negative impact of ICT on students
33 in Ghana based on patronage of social network sites, they did not provide empirical evidence. The other sub-
34 Saharan Africa-based studies on ICT cited earlier, focused mostly on academic use. It is obvious that excessive
35 social/leisure use of ICT can distract students from learning. It also raises issues of promoting immorality
36 because adolescents who are in their impressionable age are frequently exposed to "violent" action movies and
37 pornography.

38 From the discussions, it is not clear as to how and what tertiary students actually use ICT for. Could it be
39 that tertiary students are using ICTs for other social activities rather than learning? It is therefore against these
40 background that the researchers seeks to explore ICT usage and how its' usage has permeated the lifestyle of
41 Ghanaian tertiary students.

42 **2 II.**

43 **3 Purpose of the Study**

44 The study seeks to explore the exact usage of ICT among Ghanaian tertiary students. Investigating ICT use
45 at the tertiary level is crucial because this knowledge could provide guidance for ways to enhance effective and
46 efficient ICT integration and encourage greater use of ICT.

12 RESULTS AND FINDINGS A) BACKGROUND INFORMATION OF STUDENTS

47 4 Research Questions

48 The study seeks to answer the following research questions: 1. How prevalent is the use of ICTs among Ghanaian
49 tertiary students? 2. Do Ghanaian tertiary students use ICTs more for social/leisure activities than for academic
50 purpose? 3. What is relationship between ICT usage and Ghanaian tertiary students' socio-demographic
51 background?

52 III.

53 5 Significance of the Study

54 The study is significant because it could provide insights into students ICT use at the tertiary level. The study
55 provides empirical evidence on the extent of ICT use among tertiary students level in Ghana. This could provide
56 guidance for policy makers and stakeholders in education when structuring and introducing ICT integration
57 policies at the tertiary level. The study also adds to knowledge by providing new evidence about the exact use
58 of ICT use among tertiary students in Ghana.

59 6 IV.

60 7 Methodology a) Research Design

61 The study used a cross-sectional survey to collect information on ICT use among Ghanaian tertiary students.
62 Lavrakas (2008) opines that cross-sectional data are usually collected from respondents making up the sample
63 within a relatively short time frame. In a cross-sectional study, time is assumed to have random effect that
64 produces only variance, not bias. Creswell (2012) argues that cross-sectional survey design has the advantage of
65 measuring current attitudes or practices.

66 8 b) Sample and data collection

67 Tertiary students were chosen as the sample for this study because they represent a demo graphic that heavily
68 have access to ICTs and use these ICTs for various purposes. The students were currently enrolled in the tertiary
69 institutions in Ghana. In the present study we asked tertiary student in Ghana through a webbased survey about
70 their use of ICTs. A total of 1940

71 9 c) Instrument

72 After a careful review of appropriate literature, questionnaire was chosen as the instrument to collect data to
73 answer the research questions set for this study. Questionnaire was chosen because it took less time to administer
74 them and also ensured the anonymity of respondents (Fraenkel & Wallen, 2000). The questionnaire had sections
75 on ownership or access to laptop and desktop computers, and cell phones; use of ICT for social and academic
76 purposes; and socio demo graphic characteristics (gender, age, academic programme, class level and residence).

77 V.

78 10 Data Analyses

79 Prevalence of ICT usage was computed by percentage based on the number of "Yes" answers. A similar procedure
80 was also used to compute the prevalence of ownership/access to ICT devices. Logistic regression was used to
81 analyse the relationship between students' socio-demographic characteristics and use of ICT applications with
82 "Yes" and "No" as outcome dependent variables coded 1 and 0, respectively. A similar procedure was also used
83 for the data on ownership/access to ICT devices. SPSS version 20 was used for the statistical analyses.

84 11 VI.

85 12 Results and Findings a) Background Information of Students

86 The background information regarding the tertiary students is presented in Table 2. The result of the study
87 indicated that 69.6% and 30.4% of the tertiary students in Ghana were males and females respectively (see
88 Table 2). This skewed ratio is a reflection of the low population of girls pursuing tertiary education in Ghana.
89 Pertaining to the age of the tertiary students as shown on Table 2, the findings indicate that, cumulatively most
90 tertiary students were 30 years and below, 1540 (79.4%) and only a small proportion of the tertiary 400 (20.6%)
91 were above 30 years. Tertiary students studying for Bachelor's degree dominated the academic programme 1220
92 (62.9%). Students living outside the campuses (off-campus) were more than two-thirds of the sample population.
93 .0% of the tertiary students owned or had access to desktop computers and prevalence of the use of desktops was
94 correspondingly slightly higher (39.2%). The prevalence of ownership or access to laptops or the use was very
95 high 1680 (86.6%) as compared to desktop. On the other hand, there was only 10 (0.5%) of the tertiary student
96 who did not use smart phones. Almost all the tertiary students use smart phones 1930 (99.5%) with half of the
97 respondent having access to and use cell phones which were not smart phones (Table 3). The prevalence of the
98 use of ICT for academic work was generally low when compared to social applications (Figure 1). Statistical
99 software was used sparingly as indicated by the prevalence that was lower than 6% while the use of ICT for

100 "information search" was the highest with a prevalence of nearly 63% (Figure 1). The use of other academic
101 applications tended to be below average (Figure 1). Compared to academic works, prevalence of the use of ICT
102 for social/leisure activities was markedly higher with prevalence exceeding 56% except internet banking and porn
103 site (Figure 1). Patronage of social network sites was the most prevalent (99%) while music and video downloads
104 followed as shown in Figure 1.

105 13 c) Relationship between ICT Usage and Students' Socio- 106 Demographic

107 The logistic regression analyses of the relationship between ICT usage and students' sociodemographic showed
108 that mature (31 and above years) students and post-graduate students were significantly more likely to use ICT
109 tools for academic purpose than for social/leisure activities (Table ??). The analyses further revealed that male
110 tertiary students were significantly less likely to use ICT for both academic and social activities than their female
111 counterparts (Table ??). However, Bachelor's degree students were significantly associated with social use of
112 ICT, but not for academic work while on-campus resident students were significantly more likely to use ICT for
113 both academic and non-academic purposes than off-campus students (Table ??). Ghanaian Tertiary Students'
114 use of ICT

115 [VALUE] (47.4%)
116 [VALUE] (25.8%)
117 [VALUE] (34.5%)
118 [VALUE] (5.7%)
119 [VALUE] (58.8%)
120 [VALUE] (62.4%)
121 [VALUE] (99.0%)
122 [VALUE] (96.9%)
123 [VALUE] (87.1%)
124 [VALUE] (24.7%)
125 [VALUE] (56.1%)
126 [VALUE] (45.

127 14 Discussions

128 Ghanaian tertiary students own and commonly use smart phones because it is portable, "mobilityfriendly" and
129 cost much less than laptop or desktop computers. The high prevalence of the use of smart phones for sending
130 and receiving messages and video/music download is consistent with the report of ??epp, Li, & Barkley (2015).
131 The current study indicated that tertiary students see smart phones as devices for pleasure and so spend time
132 social networking, listening to music, watching video and playing games. Thus the likelihood of a reduction in
133 the time spent for academic use of ICT is indicated. The academic application commonly used by students is
134 predominantly to search for information as the current study revealed. This is understandable because tertiary
135 students need to do their assignments and prepare their dissertations/thesis among other things. However, an
136 application like SPSSwaspoorly utilized.

137 Mature or research degree students use ICT more for academic works than Bachelor or Diploma students,
138 because their academic programmes require consistent search for information, data analyses, and presentation of
139 research findings leaving them with little time for pleasure. The desktop or laptop computer becomes convenient
140 for them because the large screens encourage typing, PowerPoint presentations, drawings, graphs, statistical
141 analyses and reading online, which is not convenient with the smaller screen of smart phones. This category of
142 students is usually few hence the prevalence of the use or ownership of laptop or desktop is low. This explanation
143 is corroborated by the observation that ownership/use of laptop or desktop computer is significantly associated
144 with post-graduate students. However, on-campus students tended to use ICT applications better because their
145 off-campus colleagues face more distractions from the activities of non-students with whom they share facilities.
146 With regards to gender, the finding that males were less likely to use ICT (academic and social) than females is
147 an indication that the old idea of males dominating the use of ICT (Sutton, 1991) is changing. The inequity is
148 disappearing (Mossberger, Tolbert, & Stansbury, 2003;Selwyn, 2008).

149 The advent of smartphone technology with android devices popularised mobile devices and reduced the
150 use of desktop or laptop computers that ought to be more suitable for academic work. It is common to see
151 Ghanaiantertiary students in classrooms, buses and relaxation spots glued to their phones "Facebooking",
152 "whatsApping" or downloading music, video or pornography. These leisure-based activities have also been
153 observed in other countries (Marriott, Marriott, & Selwyn, 2004;Usun, 2003;Walmsley, White, Eynon, &
154 Somerfield, 2003;Selwyn, 2008). These distractions are likely to lower tertiary students' academic performance
155 (Lepp, Barkley & Karpinski, 2015).

156 Although the findings were not corroborated with the students' academic performance, the likelihood of
157 its negative effect on academic performance among Ghanain tertiary students cannot be overlooked given the
158 outcome of related investigations by Stollak, Vandenberg, Burklund, & Weiss (2011) and Lepp, Barkley &
159 Karpinski (2015).

160 **15 VIII. itation**

161 A limitation of this study is that the findings were not corroborated with student respondents' academic
162 performance. Any attempt at obtaining the students' academic records from the the respective tertiary
163 institution wouldn't have been successful because such information are highly classified in most Ghanaian tertiary
164 institutions.

165 **16 IX. Conclusion**

166 The current study revealed that smart phones are commonly used by Ghanaian teratiry students as comapred
167 to desktop or laptop computers. These ICT devices particularly smart phones tended to be used more for
168 social/leisure activities than academic purposes. This constitutes a distraction from learning and typifies societal
169 problems that usually accompany advances in science and technology. The finding that laptop/desktop computer
170 users performed some academic work suggests the need to encourage possession or adequate access to desktop
171 or laptop computers by students. Ghana's Higher Education Ministry and Agencies may need to find ways
172 of making laptop computers available to students at cheaper costs in order to promote the use of internet for
learning and reduce the negative use. ¹



Figure 1: Figure 1 :



Figure 2:

1

Variable	Category	Frequency	%
Gender	Male	1350	69.6
	Female	590	30.4
	Total	1940	100.0
Age	less than 20	280	14.4
	21-25	680	35.1
	26-30	580	29.9
	31 and above	400	20.6
	Total	1940	100.0
Residential Status	Off Campus	1210	62.4
	On Campus	730	37.6
Qualification	Bachelor's degree	1220	62.9
	Diploma	300	15.5
	Post Graduate	420	21.6
	Total	1940	100.0

Source: Field Data, 2017

[Note: b) Prevalence of Academic and Social Use of ICTApproximately 26]

Figure 3: Table 1 :

173

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Ownership/Access ??(%)		Usage ??(%)	
		Yes	No
Laptop	1650 (85.1%)	1680 (86.6%)	260 (13.4%)
Desktop	510 (26.3%)	760 (39.2%)	1180 (60.8%)
Cell Phone (Not Smart)	900 (46.4%)	970 (50.0%)	970 (50.0%)
Smart Phone	1930 (99.5%)	1930 (99.5%)	10 (0.5%)

Source: Field Data, 2017

Figure 4: Table 2 :

3

Variable	Socio-Demographic		Academic Use		Social Use	
	Odds ratio	95% CL	Odds ratio	95% CL	Odds ratio	95% CL
Age						
less than 20	1				1	
21 -30	1.27	0.33 -2.04	1.99*	1.73 -2.98		
31 and above	1.43*	0.51 -2.51	0.53	0.11 -2.01		
Gender						
Female	1				1	
Male	0.02*	0.04 -0.31	0.13*	0.05 -0.33		
Qualification						
Diploma	1				1	
Bachelor's degree	1.01	0.43 -3.09	5.83*	4.03 -7.93		
Post Graduate	1.97*	1.04 -4.83	1.22	0.33 -2.64		
Residential Status						
Off Campus	1				1	
On Campus	3.67*	1.98 -6.41	2.39*	1.37 -5.01		

[Note: *P<0.01 Source: Field Data, 2017]

Figure 5: Table 3 :

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16 IX. CONCLUSION

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