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Abstract- The use of ICT by Ghanaian tertiary students was investigated. Information on possession or access to laptop, desktop, smart phones and cell phone (not smart) and the use was obtained from 1940 students with a structured questionnaire. Prevalence of ownership/access was 85.1%, 26.3%, 99.5%and 46.4%, for laptop, desktop, smart phone and cell phone (not smart) respectively while the use was 86.6%, 39.2%, 99.5% and 50.0% respectively. Prevalence of the use of ICT for social/leisure-related activities was markedly higher than for academic work. Mature (31 and above years) and post graduate students were more likely to use ICT for academic purpose. Desktop or laptop was associated with academic work. Use of laptops by students should be encouraged to limit the distraction of social applications facilitated by smart phones.

I. Introduction

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

ICTs has positive motivation impact on students (Mbah, 2010) and has been useful for promoting education by open and distance learning courses in low-income countries especially the sub-Sahara Africa (Mwilongo, 2015; UNESCO, 2004). Several reports on the integration of ICTs into teaching and learning indicated that the embedding process depends on the teacher, the subject, the students and the cultural context (Adebayo, 2008; Yuen, Law, & Wong, 2003; Sutherland et al., 2004; Khan, Butt, & Zaman, 2003). Succinctly, the use of ICTs in learning includes but not limited to students' access to tutorials online, carrying out assignments, PowerPoint presentations, graphical illustrations, tables, texts, statistical analyses and access to diverse sources of information. It also promotes interaction among students in sharing ideas, information and publications among others. In addition to the educational use of ICTs, it is also used by students for social interaction and leisure (Selwyn, 2008; Corrin, Bennett & Lockyer, 2010; Roblyer, McDaniel, Webb, Herman, & Witty, 2010; Edmunds, Thorpe &Conole, 2012; Okoye 2012). However, it is a common knowledge that advances in science and technology that usually leaves trails of misuse and abuse with attendant negative impact on the society. Recent events indicate that ICTs are not immune to this negativism because of the social usage of ICTs.

Internet and mobile phone-based social interaction has steadily become popular in the last two decades (Ogedebe, Emmanuel & Musa, 2012). This was facilitated by e-mail and various chatting and networking sites such as WhatsApp, IMO, Facebook, Twitter, Instagram, YouTube, LinkedIn etc. Entertainment websites for movies, music, and pornography abound on the internet and they attract young people including tertiary students. It has been reported that students' academic use of ICTs is often intertwined with leisure use (Marriott, Marriott & Selwyn, 2004; Usun, 2003; Walmsley, White, Eynon, & Somerfield, 2003; Selwyn, 2008). This is a source of distraction from learning and recent studies showed that it had negative impact on students' academic performance (Sanchez-Martinez & Otero, 2009; Jacobsen &Forste, 2011; Stollak, Vandenberg, Burklund, & Weiss, 2011; Hong, Chiu, & Hong, 2012; Junco, 2012; Rosen, Carrier, & Cheever, 2013). These empirical studies were conducted in Europe, Asia, and USA. There is paucity of information on the use of ICT by tertiary students in Ghana and the gap needs to be filled.

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

From the discussions, it is not clear as to how and what tertiary students actually use ICT for. Could it be that tertiary students are using ICTs for other social activities rather and learning? It is therefore against these background that the researchers seeks to explore

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ICT usage and how its' usage has permeated the lifestyle of Ghanaian tertiary students.

II. Purpose of the Study

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

Research Questions

The study seeks to answer the following research questions:

1. How prevalent is the use of ICTs among Ghanaian tertiary students?
2. Do Ghanaian tertiary students use ICTs more for social/leisure activities than for academic purpose?
3. What is relationship between ICT usage and Ghanaian tertiary students' socio-demographic background?

III. Significance of the Study

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

IV. Methodology

a) Research Design

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

b) Sample and data collection

Tertiary students were chosen as the sample for this study because they represent a demo graphic that heavily have access to ICTs and use these ICTs for various purposes. The students were currently enrolled in the tertiary institutions in Ghana. In the present study we asked tertiary student in Ghana through a web-based survey about their use of ICTs. A total of 1940 tertiary students from 196 different tertiary institutions in Ghana participated in the study.

c) Instrument

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

V. Data Analyses

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

VI. Results and Findings

a) Background Information of Students

The background information regarding the tertiary students is presented in Table 2. The result of the study indicated that 69.6% and 30.4% of the tertiary students in Ghana were males and females respectively (see Table 2). This skewed ratio is a reflection of the low population of girls pursuing tertiary education in Ghana. Pertaining to the age of the tertiary students as shown on Table 2, the findings indicate that, cumulatively most tertiary students were 30 years and below, 1540 (79.4%) and only a small proportion of the tertiary 400 (20.6%) were above 30 years. Tertiary students studying for Bachelor's degree dominated the academic programme 1220 (62.9%). Students living outside the campuses (off-campus) were more than two-thirds of the sample population.

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Table 1: Demographic Information of Students

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
	Total	**1940**	**100.0**
Qualification	Bachelor's degree	1220	62.9
	Diploma	300	15.5
	Post Graduate	420	21.6
	Total	**1940**	**100.0**

Source: Field Data, 2017

b) Prevalence of Academic and Social Use of ICT

Approximately 26.0% of the tertiary students owned or had access to desktop computers and prevalence of the use of desktops was correspondingly slightly higher (39.2%). The prevalence of ownership or access to laptops or the use was very high 1680 (86.6%) as compared to desktop. On the other hand, there was only 10 (0.5%) of the tertiary student who did not use smart phones. Almost all the tertiary students use smart phones 1930 (99.5%) with half of the respondent having access to and use cell phones which were not smart phones (Table 3).

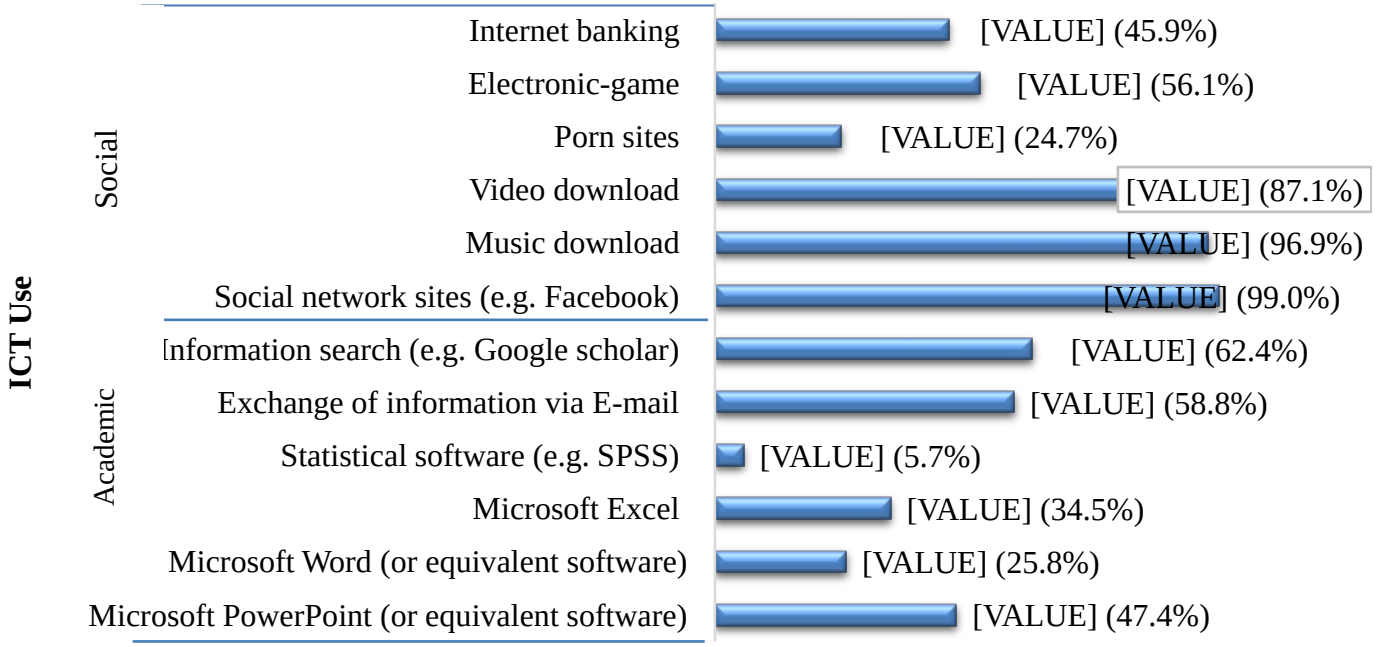
Table 2: Ownership/access and use of ICT tools (N=1940)

	Ownership/Access $n(\%)$	Usage $n(\%)$	
		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

The prevalence of the use of ICT for academic work was generally low when compared to social applications (Figure 1). Statistical software was used sparingly as indicated by the prevalence that was lower than 6% while the use of ICT for "information search" was the highest with a prevalence of nearly 63% (Figure 1). The use of other academic applications tended to be below average (Figure 1). Compared to academic works, prevalence of the use of ICT for social/leisure activities was markedly higher with prevalence exceeding 56% except internet banking and porn site (Figure 1). Patronage of social network sites was the most prevalent (99%) while music and video downloads followed as shown in Figure 1.

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Source: Field Data, 2017

Figure 1: Prevalence of Academic and Social Use of ICT

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

The logistic regression analyses of the relationship between ICT usage and students' socio-demographic showed that mature (31 and above years) students and post-graduate students were significantly more likely to use ICT tools for academic purpose than for social/leisure activities (Table 4). The analyses further revealed that male tertiary students were significantly less likely to use ICT for both academic and social activities than their female counterparts (Table 4). However, Bachelor's degree students were significantly associated with social use of ICT, but not for academic work while on-campus resident students were significantly more likely to use ICT for both academic and non-academic purposes than off-campus students (Table 4).

Table 3: Logistic Regression Analyses of the Association between ICT usage and Students' Socio-Demographic

Variable	Academic Use		Social Use	
	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

**P<0.01*
Source: Field Data, 2017

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VII. Discusions

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

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

The advent of smartphone technology with android devices popularised mobile devices and reduced the use of desktop or laptop computers that ought to be more suitable for academic work. It is common to see Ghanaiantertiary students in classrooms, buses and relaxation spots glued to their phones "Facebooking", "whatsApping" or downloading music, video or pornography. These leisure-based activities have also been observed in other countries (Marriott, Marriott, & Selwyn, 2004; Usun, 2003; Walmsley, White, Eynon, & Somerfield, 2003; Selwyn, 2008). These distractions are likely to lower tertiary students' academic performance (Lepp, Barkley & Karpinski, 2015). Although the findings were not corroborated with the students' academic performance, the likelihood of its negative effect on academic performance among Ghanain tertiary students cannot be overlooked given the outcome of related investigations by Stollak, Vandenberg, Burklund, & Weiss (2011) and Lepp, Barkley & Karpinski (2015).

VIII. Mitation

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

IX. Conclusion

The current study revealed that smart phones are commonly used by Ghanaian teratiry students as comapred to desktop or laptop computers. These ICT devices particularly smart phones tended to be used more for social/leisure activities than academic purposes. This constitutes a distraction from learning and typifies societal problems that usually accompany advances in science and technology. The finding that laptop/desktop computer users performed some academic work suggests the need to encourage possession or adequate access to desktop or laptop computers by students. Ghana's Higher Education Ministry and Agencies may need to find ways 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.

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