Students' Prior Knowledge and Skills in Computer and Internet Use: An Exploration of Incoming First Year Undergraduate Health Sciences Students at Gulu University, Uganda

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Abstract

Internet has provided infrastructure that enables access to a variety of information resources for use by medical students at Gulu University in Northern Uganda. However, little attention has been put to explore prior internet knowledge of undergraduate medical students in Uganda. Cross-sectional research design was used. Fifty-six first year undergraduate health sciences students participated in the study. Self-administered structured questionnaire was used for data collection and analysis was done using SPSS version 16. Results shows that a majority of the participants had prior knowledge of computer 48 (86.0%) and internet 44 (79.0%). 38 (68.0%) participants had access to internet and 34 (61.0%) owned computer before joining the University. Majority owned mobile phones 41 (73.0%) and used it for internet access 43 (84.0%).   Use of internet was high in social media 46 (86.8) and searching general information 44 (84.6%). Participants expected easy access to teaching materials 52 (94.5%) and communication 49 (90.7%) via internet. These findings suggest need for healthcare librarians to train incoming medical students on use of ICTs; including social media platforms and mobile phones to improve their ICT literacy skills to enable them access the best academic information resources to enhance medical education.

Keywords: Internet skills, Gulu University, first year health sciences students, Uganda.

Introduction

The use of information and communication technologies (ICTs), especially internet has revolutionized our education system. Internet has provided infrastructure that enables the use of electronic mail, social media, digital telephone to access a wide variety of relevant information resources for education (Maroof, Parashar & Bansal, 2012). In medical education and medicine specifically, internet is used for teaching, medical examination, research and access to scientific information (Maroof et al., 2012; Kumar, Veena, Vastrad & Nandan, 2016). The use of computer and internet is rapidly increasing among medical students (Tushar, Swapnali & Pooja, 2016). Maroof et al., (2012) argued that internet provides opportunities for medical students to meet their academic and learning needs. By way of contrast, little attention has been put to discover prior internet knowledge and skills of undergraduate medical students to enable health science libraries to design better ways of promoting information literacy skills among medical students to enable them access relevant educational resources via internet technology. Almarabeh, Rajab and Majdalawi (2016) put across strong argument that prior digital proficiency that students acquired from other places, such as place of residence or former schools may determine their level of utilization of computer and internet for accessing information in the future.

Shiferaw, Mehari and Eshete (2020) studied eHealth literacy and internet use among undergraduate nursing students in a resource limited country and found among others that, places of residence were significantly associated with participants' eHealth literacy skills. Another study by Madhusudan et al., (2018) on internet addiction and its determinants among the students of a medical college in Kerala found that places of students' origin had significant association with internet addiction. Other studies indicated that students who joined university education had learned ICT skills at high school. For example, a study by Tarimo and Kavishe (2017) on internet access and usage by secondary students in Morogoro municipality in Tanzania indicated students already had some kind of internet access and usage for academic purposes while at school. Similarly, Malliari, Togia, Korobili and Nitsos (2017) found that, found that first year students of Greek high-school were accustomed to using computer and internet in their daily lives but they finds problems in locating and evaluating information for school work. This revelation indicates clear need for well-planned strategies for improving digital and information literacy skills among students.

In Uganda, ICT policy development started from around 1998 (Hennessy et al., 2010). Uganda Government ICT development emphasized skilling youth on ICT to prepare them for the job market. However, the latest census data showed that only about 7.3% of the households have access to internet in Uganda (UBOS, 2016). In addition, the adoption of ICT by secondary schools is still inadequate with very little empirical evidence about its impact on education (Hennessy et al., 2010). Uganda has about 1114 and, 1800 government and private-aided secondary schools respectively (Ndawula, Kahuma, Mwebembezi & Masagazi, 2013) and only about 2070 schools are connected to internet, with more in urban compared to rural schools (Farrell, 2007). Many of these schools deliberately prioritized ICT for office use, followed by teachers and lastly students use (Newby, Hite, Hite &Mugimu, 2013).The levels of ICT training and facilities are also very low in many schools (Ndawula et al, 2013). Arguably, integration of ICT appears to show least priority in improving secondary school students' ICT knowledge and skills, yet about 60,370 students join higher institutions of learning in Uganda yearly (Ahimbisibwe, 2010). It is expected that the number of students aforementioned will more likely use ICT when they join university education. Unfortunately, little or no study has been done to discover prior internet knowledge and skills of these students immediately when they joined universities. Few available studies on students' use of ICTs

concentrated on those already engaged in universities' academic programs. This makes it difficult to determine and understand students' prior internet knowledge and skills. For examples of such studies include those of Kumar et al., (2016), Polepalli and Ramesh (2016), Shashiraj, Kavitha, Deepali and Mahesh (2017), Ajuwon (2003), Challa and Madras (2014), Shaheen and Farahat (2016), Friederichs, Marschall, Weissenstein, (2014) and Almarabehet al., (2016). The aim of this study was to explore prior internet knowledge and skills of first year undergraduate health science students of Gulu University. Specifically, the objectives of the study are to: explored incoming medical students' level of knowledge in computer and internet, level of internet skills, previous use of internet before joining the University and expectations about the benefits of internet in medical education. The research questions addressed by the study were: what is the level of incoming medical students' knowledge in computer and internet use? What is the level of incoming medical students internet skills? What are the previous usages of internet by the incoming medical students before joining the University and what are the expectations of the incoming medical students about the benefits of internet in medical education?

Literature review

Throughout the world, the use of ICT for educational purposes is enormous especially among college and universities students. With the use of ICTs and a lot of various wireless communications enable devices, students; especially those in medical schools have increased their use tremendously that it will for sure have everlasting results on education when they are promoted appropriately. Nonetheless, little attention has been put to explore prior computer and internet knowledge and skills of undergraduate medical students, with the view of improving their digital literacy. Study done by Shiferaw et al., (2020) at the University of Gondar found that first year undergraduate students have low access and use of internet. This situation somewhat directly points to some of the reasons why there are low access and use

of relevant online educational resources for students. However, studies pointed towards the issues of computer and internet knowledge and skills as factors that determine ICTs usage for educational purposes (Rajab et al., 2016; Challa & Madras, 2014). Almarabeh et al., (2016) studied awareness and usage of computer and internet among medical students at the University of Jordan and found that students possessed advance knowledge in basic computer and internet use. Similarly, Challa and Madras (2014) found that majority of medical students have average computer skills and use internet at least daily. Skills however, vary among gender and localities of students. Study by Tushar et al., (2016) found that the use and skills in computer among undergraduate medical students were more in males than females and also more in urban than rural students. Study also showed that majority of medical students preferred using mobile for accessing internet followed by laptop; tablet and desk top (Kumar et al., 2016). Despite some of these, the use of computer and internet by medical students is unlikely to equally translate to its use for educational purposes. Kumar et al., (2016) found that despite medical students' knowledge of internet use, applications of internet as an educational tool is not forthcoming. This same situation may be applicable for the case of incoming medical students joining their first year of study in universities. These particular groups of medical students need special attention from healthcare librarians in term of improving their digital and information literacy skills so that students can evaluate, locate and access the best online information resources for their education. Studies done on first year medical students who have joined universities found that students used internet for academic and non-academic purposes (Polepalli & Ramesh, 2016; Kumar et al., 2016). However, majority of these medical students start using computer and internet before joining university education while others starts while already at universities (Challa & Madras, 2014). Studies on computer and internet use majorly dwell on medical students who have already started attending university education (Shiferaw et al., 2020; Rajab et al.,

2016; Challa & Madras, 2014; Almarabeh et al., 2016; Polepalli & Ramesh, 2016; Kumar et al., 2016). This study will try to fill the gap in knowledge by exploring prior computer, internet knowledge and skills of first year undergraduate health science students.

Methods

Study site: Gulu University which was opened in 2002 is situated in Gulu municipality Gulu district northern Uganda. The University has six faculties and two institutes namely: Faculty of Medicine, Faculty of Agriculture and Environment, Faculty of Science, Faculty of Education and Humanities, Faculty of Business and Development Studies, Faculty of Law, Institute of Peace and Strategic Studies, and Institute of Research, Graduate Studies and Staff Development. Faculty of Medicine was established in 2004 aimed at improving access to university education as well as improving access to quality healthcare in post-war conflict northern Uganda and beyond.

Study design and participant sample: Cross-sectional survey research design was used. The study targeted 271 undergraduate health sciences students admitted at Gulu University in academic year 2017/2018 to study Bachelor of Medicine and Surgery, Bachelor of Public Health, Diploma in Pharmacy and Certificate in Pharmacy at Faculty of Medicine. First year undergraduate medical students were recruited in to the study during the Gulu University Medical Library first orientation program for academic year 2017/2018 held August 19, 2017. The data were collected as part of the efforts to determine incoming health sciences students'

internet knowledge and skills. It was expected that findings would help in developing appropriate Medical library information literacy training module that align with the incoming health science students' internet knowledge and skills. Convenience sampling method was used to select participants for the study (Creswell, 2014).Questionnaire were distributed to 73 health science students who attended library orientation scheduled for August 19 2017and 56 questionnaire were returned and used for analysis.

Instrument and procedures: Structured questionnaire adapted from Maroof et al., (2012) Ayatollahi, Ayatollahi, Ayatollahi, Ayatollahi and Shahcheraghi (2014), Kumar, Veena, Vastrad, Nandan (2016) and Almarabeh et al., (2016) was used for the study. The questionnaire contained 19 questions, mainly elicited information about participants' demographics, prior knowledge of computer and internet, prior internet skills, internet access and places of access, ownership of computer and mobile phone, previous use of technologies for accessing internet, frequency of using internet, and previous use of internet and expectations about the benefits of internet in medical education.

Data analysis: Descriptive statistical procedures were used to analyze the data. SPSS statistical software package version 16 was used to aid data analyses. Tables and figures were used to summarize and present the data, and frequencies, percentages and mean percentages are reported. The study also used cross-tabulation to compare the demographic characteristics and knowledge of computer, internet and demographic characteristics and skills in using internet.

Results

Demographic characteristics

Fifty-six first year undergraduate health sciences students participated in the study (response rate of 76.7%). Of the participants, majority 45 (80.3%) were between 17 – 24 years of age. Male 45 (80.4%) were more than female 11 (19.6%). The numbers of male and female reflected the disproportionate admission of students into health professional training institutions in Uganda (Galukande et al., 2018).

Demographics		Frequency	Percentage
Age	17-20 Years	25	44.6
	21-24 Years	20	35.7
	25-28 Years	7	12.5
	29-32 Years	1	1.8
	32 Years and above	3	5.4
Gender	Female	11	19.6
	Male	45	80.4
Program admitted	Certificate in Pharmacy	14	25.0
	Diploma in Pharmacy	4	7.1
	Bachelor of Medicine & Surgery	35	62.5
	Bachelor of Public Health	3	5.4
Region studied	Northern	18	32.1
	Central	24	42.9
	Eastern	4	7.1
	Western	9	16.1
	Southern	1	1.8
School location	Urban area	48	85.7
	Rural area	8	14.3
School Category	Private school	31	55.4
	Government school	25	44.6

Majority of participants who participated were in the program of Bachelor of Medicine and Surgery 35 (62.5%) followed by certificate in pharmacy 14 (25%). The highest percentage of first year undergraduate health sciences students came from central Uganda 24 (42.9%), followed by northern Uganda 18 (32.1%). Further, majority studied in urban areas 48 (85.7%) more than rural area schools at 8 (14.3%). The number of those who studied in private school 31 (55.4%) is slightly higher than government-aided schools 25 (44.6%). It is not clear if the distribution of students between private and government-aided secondary schools reflects better quality education in private secondary schools.

Participants' knowledge of computer and internet

As shown in Table 2, 48 (85.7%) of the participants had prior knowledge of computer and 44 (78.6%) had knowledge of internet use.

Table 2 Prior knowledge of computer and internet

	Knowledge of computer		Knowledge of Internet	
	Yes	No	Yes	No
Age				
17-20 Years	20 (80.0%)	5 (20.0%)	18 (72.0%)	7 (28.0%)
21-24 Years	18 (90.0%)	1 (10.0%)	16 (80.0%)	4 (20.0%)
25-28 Years	6 (85.7%)	1 (14.3%)	6 (85.7%)	1 (14.3%)
29-32 Years	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
32 year and above	3 (100.0%)	0 (0.0%)	3 (100.0%)	0 (0.0%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**
Gender				
Female	10 (90.9%)	1 (9.1%)	10 (90.9%)	1 (9.1%)
Male	38 (84.4%)	7 (15.6%)	34 (75.6%)	11 (24.4%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**
Program				
Certificate Pharmacy	9 (64.3%)	5 (35.7%)	10 (71.4%)	4 (28.6%)
Diploma Pharmacy	4 (100.0%)	0 (0.0%)	4 (100.0%)	0 (0.0%)
Bachelor of Medicine & Surgery	33 (94.3%)	2 (5.7%)	27 (77.1%)	8 (22.9%)
Bachelor of Public Health	2 (66.7%)	1 (33.3%)	3 (100.0%)	0 (0.0%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**
Region studied				
Northern	15 (83.3%)	3 (16.7%)	15 (83.3%)	3 (16.7%)
Central	23 (95.8%)	1 (4.2%)	20 (83.3%)	4 (16.7%)
Eastern	3 (75.0%)	1 (25.0%)	2 (50.0%)	2 (50.0%)
Western	6 (66.7%)	3 (33.3%)	6 (66.7%)	3 (33.3%)
Southern	1 (100.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**
Former School Location				
Urban area	41 (85.4%)	7 (14.6%)	39 (81.2%)	9 (18.8%)
Rural area	7 (87.5%)	1 (12.5%)	5 (62.5%)	3 (37.5%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**
Category of School				
Private school	27 (87.1%)	4 (12.9%)	24 (77.4%)	7 (22.6%)
Government school	21 (84.0%)	4 (16.0%)	20 (80.0%)	5 (20.0%)
Total	**48 (85.7%)**	**8 (14.3%)**	**44 (78.6%)**	**12 (21.4%)**

Proportionately, majority of participants with knowledge in computer and internet were in the age group 17 – 20 years, 20 (80.0%) and 18 (72.0%) respectively, followed by aged 21 – 24 years with 18 (90.0%) and 16 (80.0%) respectively. Proportionately, equal number of female were knowledgeable of computer and internet 10 (90.9%) more than male at 38 (84.4%) and 34 (75.6%) respectively. Majority of participants admitted for Bachelor of Medicine and Surgery were

knowledgeable in computer 38 (94.3%) and in internet 27 (77.1%). Majority of participants 23 (95.8%) and 20 (83.3%) who came from central Uganda were knowledgeable in computer and internet respectively, followed by those from northern Uganda at 15 (83.3%) and internet 15 (83.3%) respectively. From the analysis, the study can however conclude that majority of participants had knowledge of computer 48 (86.0%) and internet 44 (79.0%). This may be because many secondary schools in Uganda are teaching their students only basic ICT skills (Ayorekire & Twinomuhangi, 2012). However the distribution between the different categories is not statistically significant.

Participants' Internet skills
Table 3 showed that 21 (39.6%) of the participants had good internet skills, with majority aged between 21 – 24 years 13 (65.5%). More male students had good internet skills 15 (35.7%) than female 6 (54.5%). Majority of participants from central region had good internet skills 10 (41.7%) compared with other regions and mostly from urban schools 19 (41.3%).

Table 3.Internet skills (n= 56)

	Skills in internet				
	No skill	Good skills	Very good skills	Excellence skills	Fair skills
Age					
17-20 Years	3 (13.6%)	7 (31.8%)	5 (22.7%)	0 (0.0%)	7 (31.8%)
21-24 Years	3 (15.0%)	13 (65.0%)	1 (5.0%)	1 (5.0%)	2 (10.0%)
25-28 Years	1 (14.3%)	1 (14.3%)	2 (28.6%)	0 (0.0%)	3 (42.9%)
29-32 Years	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)
32 Years and above	0 (0.0%)	0 (0.0%)	2 (66.7%)	0 (0.0%)	1 (33.3%)
Total	7 (13.2%)	21 (39.6%)	11 (20.8%)	1 (1.9%)	13 (24.5%)
Gender					
Female	1 (9.1%)	6 (54.5%)	2 (18.2%)	0 (0.0%)	2 (18.2%)
Male	6 (14.3%)	15 (35.7%)	9 (21.4%)	1 (2.4%)	11 (26.2%)
Total	7(13.20%)	21(39.60%)	11(20.80%)	1(1.90%)	13(24.50%)
Program					
Certificate in Pharmacy	3(23.1%)	8(61.5%)	1(7.7%)	0(0.0%)	1(7.7%)
Diploma in Pharmacy	0(0.0%)	2(50.0%)	1(25.0%)	0(0.0%)	1(25.0%)
Bachelor of Medicine & Surgery	3(9.1%)	10(30.3%)	8(24.2%)	1(3.0%)	11(33.3%)
Bachelor of Public Health	1(33.3%)	1(33.3%)	1(33.3%)	0(0.0%)	0(0.0%)
Total	7(13.2%)	21(39.6%)	11(20.8%)	1(1.9%)	13(24.5%)
Region studies					
Northern	4(22.2%)	6(33.3%)	5(27.8%)	0(0.0%)	3(16.7%)
Central	0(0.0%)	10(41.7%)	4(16.7%)	1(4.2%)	9(37.5%)
Eastern	1(33.3%)	1(33.3%)	1(33.3%)	0(0.0%)	0(0.0%)
Western	2(28.6%)	3(42.9%)	1(14.3%)	0(0.0%)	1(14.3%)
Southern	0(0.0%)	1(100.0%)	0(0.0%)	0(0.0%)	0(0.0%)
Total	7(13.2%)	21(39.6%)	11(20.8%)	1(1.9%)	13(24.5%)
Former school location					
Urban area	6(13.0%)	19(41.3%)	8(17.4%)	1(2.2%)	12(26.1%)
Rural area	1(14.3%)	2(28.6%)	3(42.9%)	0(0.0%)	1(14.3%)
Total	7(13.2%)	21(39.6%)	11(20.8%)	1(1.9%)	13(24.5%)
Category of school					
Private school	2(6.9%)	10(34.5%)	7(24.1%)	0(0.0%)	10(34.5%)
Government school	5(20.8%)	11(45.8%)	4(16.7%)	1(4.2%)	3(12.5%)
Total	7(13.2%)	21(39.6%)	11(20.8%)	1(1.9%)	13(24.5%)

Internet skills were however, almost equal for students from private secondary schools 10 (34.5%) and government secondary schools 11 (45.8%). Thirteen (24.5%) first year health sciences students had fair internet skills, majority were male students 11 (26.2%), mostly from urban areas 12 (26.1%) and from private schools 10 (34.5%). Eleven (20.8%) participants' had very good internet skills and only 1 (1.9%) with excellence internet skills. 7 (13.2%) however do not have any internet skills at all. At least 13 (24.5%) and 21 (39.6%) had fair to good internet skills respectively.

Access to internet before joining the University
As indicated in Figure 1, thirty-eight (68%) said they had access to internet before joining the university. On the other hand, 18 (32%) indicated they had no access to internet before joining the University.
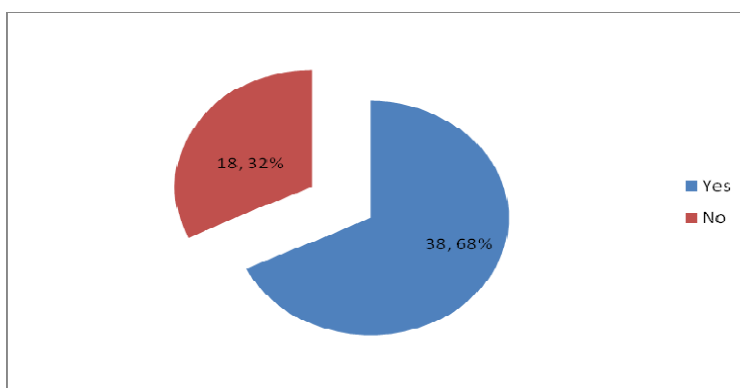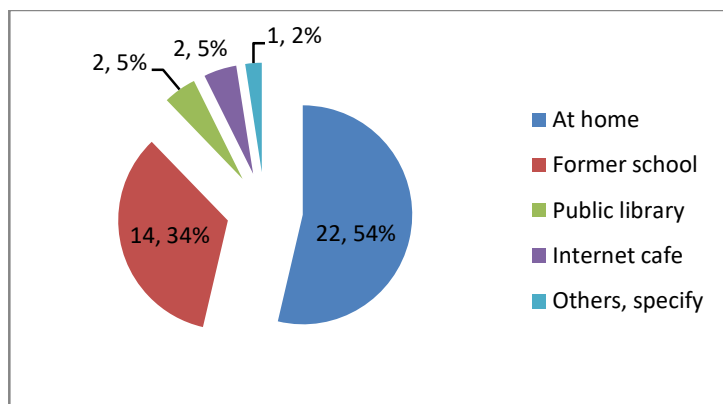

Figure 1 Access to internet before joining the University

Places of accessing internet
As indicated in Figure 2, majority of participants indicated they accessed internet in their homes before joining the University 22 (54.0%) followed by those who accessed it in their former schools 14 (34.0%). Very few participants indicated they accessed internet at public libraries and internet café. It may be because public libraries in Uganda have no or few such facilities for internet and, public café may be expensive for participants since it is private and require fees.

There were only 48/56 (85.7%) participants who indicated places where they previously accessed internet. This is likely because 18 (32%) of those participants who indicated they had never previously accessed internet before joining the University (see Figure 1).

Ownership of computer and mobile phone

As shown in Figure 3a, thirty four (61.0%) participants indicated that they had their own personal computers. Figure 3b showed that majority of participants owned mobile phone 41 (73.0%). The high number of mobile phones in this study could be attributed to the very high growing rates of phone ownership among secondary school students (Burns et al., 2019).
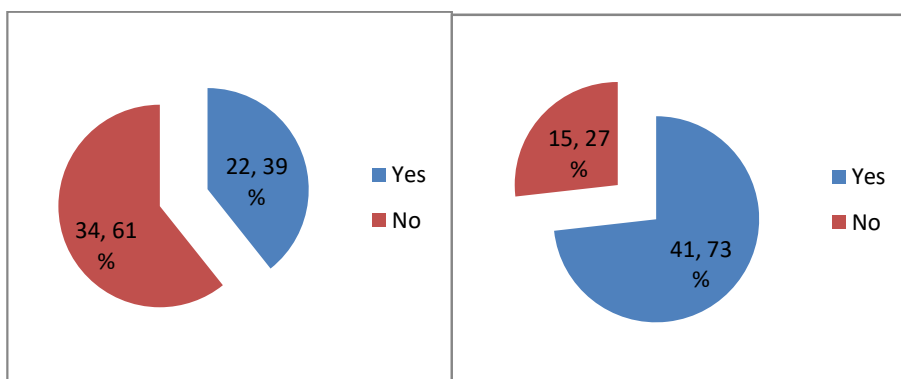

Figure 2a. Ownership of computer   Figure 3b. Ownership of mobile phone

Technology most used for accessing internet

As indicated in Figure 4, participants indicated they mostly used mobile phone for accessing internet 43 (84.0%). Burns and colleagues reported that the use of mobile phone for accessing internet is rapidly growing as compared to use of desk top or lap top computers (Burns et al., 2019).
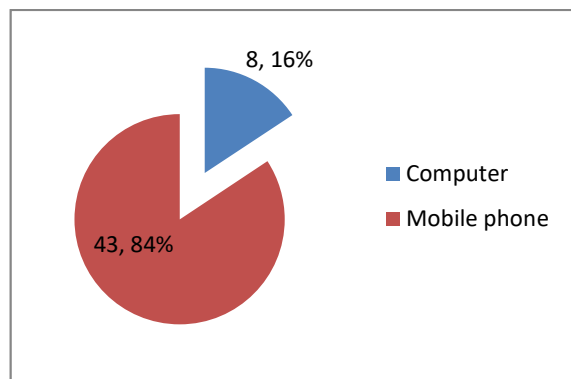

Figure 4. Most used technology for internet access

Frequency of using internet

Participants were asked three questions related to frequency of using internet as presented in Table 4. First, their frequency of using internet; secondly, time spent using internet and third, how long they have been using internet.

Table 4 Frequency of using internet (n = 56)

	Frequency	Percentage
Frequency of using internet		
Every day	25	45.5
2-3 days a week	14	25.5
Once a week	11	20
Once a month	1	1.8
Do not use Internet	4	7.3
Time spent using internet (daily)		
Less than 1 hour	23	47.9
1 hour	17	35.4
2 hours	3	6.3
3 hours	3	6.3
4 hours and above	2	4.2
Length of using internet (in years)		
Less than 1 year	19	36.5
2-3 years	17	32.7
4-5 years	7	13.5
6 years and above	9	17.3

Twenty five (45.5%) reported using internet every day, followed by those who use internet 2-3 days a week 14 (25.5%). Eleven (20%) use internet at least once a week. 20 (47.9%) used internet for less than one hour daily, followed by 17 (35.4%) who used it at least for 1 hour daily. To note, about 4 (7.3%) indicated they do not use internet. In addition, majority of participants also indicated that they have been using internet for less than 1 year 19 (36.5%), followed by 17 (32.7%) who have used internet from between 2 – 3 years. Some participants however have indicated that they have used internet for 6 years and above 9 (17.3%) and others 7 (13.5%) have used internet from between 4 -5 years.

Previous use of internet by participants
As indicated in Table 5, respondents top 7 previous used of internet before joining Gulu University were in social media (e.g. face book) 46 (86.8%), searching general information 44 (84.6%), searching for academic materials 43 (82.7%), reading news 43 (81.1%), downloading academic materials 40 (76.9%), watching videos 39 (73.6%) and sending and receiving e-mail 38 (73.1%).

Table 5 Previous use of internet by first year medical students (n = 56)

Previous use of internet	Disagree		Not sure		Agree	
	F	%	f	%	f	%
Searching general information	4.0	7.7	4.0	7.7	44.0	84.6
Sending and receiving mail	10.0	19.2	4.0	7.7	38.0	73.1
Social media (e.g. Face book)	3.0	5.7	4.0	7.5	46.0	86.8
Downloading movies and games	9.0	17.0	9.0	17.0	35.0	66.0
Downloading software	23.0	44.2	9.0	17.3	20.0	38.5
Betting	27.0	50.9	10.0	18.9	16.0	30.2
Searching for academic materials	5.0	9.6	4.0	7.7	43.0	82.7
Watching videos	7.0	13.2	7.0	13.2	39.0	73.6
Reading news	4.0	7.5	6.0	11.4	43.0	81.1
Downloading academic materials	7.0	13.5	5.0	9.6	40.0	76.9
e-learning/ distance learning	22.0	41.5	16.0	30.2	15.0	28.3
Total Mean % score		20.9		13.5		65.6

However use of internet for betting 27 (50.9%), downloading software 23 (44.2%) and e-learning/distance learning 22 (41.5%) were not previously popular among participants.

Participants' expectations about the benefits of internet

Participants' expectations about the benefits of internet in medical education were high in all the 8 items as indicated in Table 6.

Table 6: Participants' expectations about the benefits of internet (n = 56)

Expectation about the benefit of internet	Disagree		Not sure		Agree	
	f	%	f	%	f	%
Easy access to teaching materials	2.0	3.6	1.0	1.8	52.0	94.5
Easy access to online libraries	2.0	3.6	4.0	7.3	49.0	89.1
Easy communication with lectures	6.0	10.9	7.0	12.7	42.0	76.4
Easy communication with fellow students	3.0	5.6	2.0	3.7	49.0	90.7
Easy access to treatment information	6.0	10.9	9.0	16.4	40.0	72.7
Easy diagnosis of diseases	8.0	14.5	9.0	16.4	38.0	69.1
Easy access to online medical books and journals	2.0	3.7	4.0	7.4	48.0	88.9
Easy communication with medical students from	5.0	9.1	5.0	9.1	45.0	81.8
Total mean % score		7.7		9.4		82.9

For example the top 4 expectations are having easy access to teaching materials 52 (94.5%), easy communication with fellow students 49 (90.7%), easy access to online libraries 49 (89.1%) and easy access to online medical books and journals 48 (88.9%). These positive expectations about the benefits of internet may indicate willingness by undergraduate medical students to use internet in medical education.

Discussion

This study investigated first year undergraduate medical students' prior knowledge and skills in internet. It is discovered that majority of participants generally are knowledgeable of computer and internet. These findings confirmed why participants used internet for accessing social media, searching general information and academic materials among others. The finding is similar to Almarabeh et al., (2016) and Challa and Madras (2014) who found that students start using computer and internet before joining medical college. Shiferaw, Mehari and Eshete (2020) also found among others that, places of residence were significantly associated with participants' eHealth literacy skill. Combined, at least 64.1% of participants had fair to good internet skills. The finding that participants had fair to good internet skills is comparable to Almarabeh et al., (2016). Prior internet skills among participants is arguably not very satisfactory mainly because ICT in secondary schools in Uganda is largely limited to teaching basic computer skills with very little emphasis on the use of internet for accessing educational materials (Ayorekire &Twinomuhangi, 2012).

Despite fair to good skills in using internet in this study, participants indicated that they previously used internet for social media (e.g. face book), searching general information, searching for academic materials, reading news, downloading academic materials, watching videos and sending and receiving e-mail. The study also indicated that participants (68%) had access to internet before joining the university. The finding is similar to Almarabeh et al., (2016) and Challa and Madras (2014) who found that students start using computer and internet before joining medical college. Studies have also indicated that students start using internet from other places before joining universities Saied, Elsabagh & El-Afandy (2017), Woreta, Kebede & Zegeye (2013), Jadoon et al., (2011) and Ayatollahi et al., (2014) Surprisingly, very few participants indicated they accessed internet from public library and internet café. It may be because

public libraries in Uganda have no or few internet facilities and public café may be expensive for participants. Majority of participants indicated that they have their own personal computer, and owned mobile phone respectively. Students normally owned phone while in secondary (Burns et al., 2019) and others while at the universities (Boruff & Storie, 2014; Payne, Wharrad & Watts 2012). The number of computer owned could also be because they acquired it as one of the essential requirements for medical education.

Majority of participants (84.0%) also indicated they mostly used mobile phone for accessing internet compared to few who used computer (16.0%). Studies showed that most students preferred using mobile devices for accessing information through internet (Almarabeh et al., 2016; Boruff & Storie, 2014). Mobile phone and other mobile devices may be preferred tools because they are portable, require less power, convenience and many have improved features with good storage capacity (Almarabeh et al., 2016). Study by Gutmann et al., (2015) showed high acceptability of mobile applications among medical students. Fan, Radford and Fabian, (2016) however is still worried about the mismatch between the desire to use mobile devices and its actual use in practice. However, it is argued that the use of mobile phone and other mobile devices seems to be a better tool for students (Hennessy et al., 2010)

Our findings also show that participants use internet more every day followed by those who used it 2-3 days a week (Shashiraj et al., (2017) and Challa and Madras (2014) also found that more medical students use internet daily. The consequence for our study is that, participants are reporting prior used of internet before they joined the university.

Contrary to concerns about addiction to the internet, more participants use internet less than one hour daily, followed by those who used it 1 hour daily. On the other hand, some few participants said they used internet for less than 1 year and 2-3 years respectively (see table 4). The frequencies of using internet prior to joining the university look unsatisfactory in this

particular study. These could be directly attributed to many secondary schools in Uganda teaching only the very basic of ICT leaving-out use of internet by students (Ayorekire & Twinomuhangi, 2012). Difficulties in accessing ICT devices could have contributed to participants not to use internet. We can argue that participants who indicated access to internet have been using their mobile phones.

The main purposes of prior use of internet were accessing social media, searching general information and academic materials, reading news and downloading academic materials. The findings is similar to Polepalli and Romaesh (2016) who found that majority of medical students use internet for multiple purposes including academic, entertainment, general information, news, e-mail and chat. Furthermore, our findings show that participants' expectations were that by using internet while in the university, they will have easy access to teaching materials, communication with fellow students, access to online libraries and easy access to online medical books and journals. These expectations confirm already reported benefits of internet including its use in teaching, diagnoses, medical examination, research and access to varieties of scientific information resources (Maroof et al., 2012; Kumar et al., 2016). The implication of this finding is that, preparation should be in place to address and meet expectations of students joining universities.

Limitations of the study

The study major limitations are the small sample due to small number of health science first year students who attended the medical library orientation. These could have affected the generalization of our findings to a larger population. Future study should repeat this study to include many universities in Uganda in order to get better picture of prior internet skills among university students.

Conclusions

The study explored internet knowledge and skills of first year undergraduate medical students who have joined university system. We found that majority of participants generally are knowledgeable of computer and internet use, had fair to good skills in internet use. More than half of the participants owned computers and majority owned mobile phone. We also found that students have been previously using internet for various activities including searching for academic resources and their expectations were very high about the benefits of internet for medical education. These findings suggest need for healthcare librarians to train incoming medical students on the use of ICTs; including social media platforms and mobile phones to improve their ICT literacy skills to enable them access the best academic information resources to enhance medical education.

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