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IS PREVIOUS STUDENT COMPUTER EXPERIENCE RELATED TO THEIR ATTITUDES TOWARDS INTERNET USE?

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Abstract:
In the recent past, university students were confined to traditional educational technologies such as chalkboards, papers and textbooks for pedagogical purposes. Institutions of higher learning in Uganda have provided Internet services to students, increasing their access to global resources through surfing, downloading and obtaining electronic materials. Students' use of technology as a university provision should be explored in order to establish and meet their needs more effectively. This study was conducted in Kyambogo University in Uganda, to explore the impact of students' previous computer experience on use of the Internet. Stratified random sampling technique was used to select a sample of 280 university students. The quantitative data, collected using a questionnaire, was analyzed descriptively using SPSS for frequencies, means standard deviation and cross tabulation. The qualitative data, collected using interviews, was analyzed using thematic analysis. The results corroborated each other, indicating a significant relationship between previous computer experience and students' use of Internet. It was recommended that students be incentivized in order to develop positive attitudes towards use of e-technology; and learners be introduced to use of ICT at both primary and secondary levels of education.

Keywords: previous computer experience, students' use of internet, students' attitudes, Kyambogo university

1. Introduction

The Internet has informed a paradigm shift in accessing academic resources to support teaching/learning (Daramola, 2015; Ng'ambi et al., 2016) and as such, equipping learners to participate competitively in the global economy (Newby et al., 2013). Indeed, teachers

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and students at higher institutions of learning can search, obtain and download electronic books as well as papers from electronic journals (Machimbidza & Mutula, 2020). The Internet is a relatively new medium with a wealth of academic resources as well as requisite information literacy competences to access these resources (Senkbeil & Ihme, 2017). However, while the Internet has become integral to teaching and learning within higher institutions (Resta, 2002), it remains underutilised in Africa, where its incorporation into higher education is disproportionately low (AAU, 2017; Kyakulumbye et al., 2013; Lusigi, 2019). Indeed, as Omoda-Onyait & Lubega's (2011) study on readiness for e-learning in 8 institutions of higher learning in Uganda in developing countries are unfamiliar with e-Learning, have low levels of computer availability, access, familiarity and internet penetration (p. 200). Indeed, Aguti and Fraser (2006)'s study of Makerere University, the largest and oldest university in Uganda, shows paucity in access to, as well as use of education technology in teaching on the largest distance-teaching program in the country. Nonetheless, the government of Uganda recognizes the importance of ICTS and has articulated the goal: "*To promote the development and effective utilization of ICT such that quantifiable impact is achieved throughout the country within the next 10 years*" (Republic of Uganda July 2002, p. 21 as cited in Aguti & Fraser, 2006, p. 94).

Uganda developed its initial ICT national policy in 2003 (Farrell, 2007). The policy framework document that delineated the need for a national ICT policy recognized that Uganda would need to embrace the goal of lifelong education for all. One of the recommendations implemented early in 2006 resulted into the forming of a Ministry of ICT to address the convergence of ICT and to provide coordination of policy development (Bassi, e-schools, & Communities Initiative, 2011). New media for providing quality educational materials was also realized in response. Universities in Uganda are now increasing their investment to adopt ICT as an integral part of their instructional strategy, working in close collaboration with the Ministry of Education and Sports. Kyambogo University (KyU), the second largest in the country, has developed a Web presence for regular students and the affiliated colleges. KyU even with paucity in its ICT resources is committed to the provision of ICT training as well as the digitization of the online curriculum to its stakeholders (Olema, 2019).

KyU was established in 2003 as a public university, by merging three institutes namely: Institute of Teacher Education Kyambogo (ITEK), Uganda Polytechnic Kyambogo (UPK), and the Uganda National Institute of Special Education (UNISE). It is located on Kyambogo Hill in Kampala District (Ngobi et al., n.d.). The University student enrolment includes Postgraduate, Undergraduate, Diploma and Certificate totalling to over 26,547 students. In KyU, computer laboratories with technology connectivity have been established to assist in students' training through projects such as Connect-ED, as well as the Open, Distance and e-Learning (ODeL) which is funded by the AVU and the African Development Bank (ADB) for in-service distance teacher education. Yet, like the other universities in Uganda, students at KyU remain ambivalent to this new technology, resulting into low levels of ICT/internet utilization (AAU, 2017; J. Aguti & Fraser, 2006; Aguti et al., 2004; Kyakulumbye et al., 2013; Lusigi, 2019).

The ability to effectively use technology has been linked to ICT literacy, which is considered a key competence for accessing, managing as well as critically evaluating information (Senkbeil & Ihme, 2017). By possessing prior computer training, students stand higher chances of using the Internet. Students who have prior experience with computers are in better position to use sophisticated techniques for searching information (Pennanen & Vakkari, 2003; Wildemuth, 2004). Computer use contributes to high levels of Internet confidence (Verhoeven et al., 2007; Verhoeven et al., 2020).

Students arguably lack ICT literacy, which is considered a functional literacy to inform their utilization of the Internet for academic purposes. Moreover, studies in many countries have demonstrated the limited use of computers in schools (Eickelmann & Birgit, 2011; Van Deursen & Van Diepen, 2013). This suggests that young people dominantly use ICT at home for entertainment than for educational purposes, thereby acquiring ICT skills on their own (Senkbeil & Ihme, 2017; Wittwer & Senkbeil, 2008; Zhong, 2011). Some scholars have questioned whether such ICT-related skills can effectively inform academic use of technology resources (Gibbs et al., 2011; Van Deursen & Van Diepen, 2013). This study took up this question, to investigate previous computer skills and students' attitudes towards use of the Internet. Previous studies carried out in different parts of the world show that university students tend to have mixed attitudes towards the use of ICT (Bakioglu & Hacifazlioglu, 2008; Van Deursen & Van Diepen, 2013; Wittwer & Senkbeil, 2008). Therefore, this study was guided by the research question:

- Is there a significant relationship between previous computer skills and students' attitudes towards use of Internet?

2. Literature Review

Several researchers agree that prior positive computer use, exposure, and experience with computers lower Internet anxiety (Matthews et al., 2020; Simsek, 2011; Sullivan et al., 2019). Indeed, as research shows, increased exposure to computers minimizes the negative conditions that exist and results in positive students' attitudes, which affect their success in using the Internet. Consequently, students who have prior experience with computers have an advantage in regard to using advanced methods for finding information (Pennanen & Vakkari, 2003).

Luan et al., (2005) in their study concerning users' attitudes toward the Internet among pre-service teachers under the Faculty of Educational Studies, University Putra Malaysia, found that the more positive attitudes the participants had towards the computer, the longer they stayed on the Internet. Similar studies have corroborated the findings that indeed, prior experience with computers leads to more positive attitudes for all participants towards the Internet (Rugayah Hajah & Hashim Mustapha, 2004).

Schumacher and Morahan-Martin (2001) explored whether attitudes towards the Internet and computer experiences were related, using evidence from two studies of incoming college students, in 1989/90 and 1997. There were significant differences in

many computer experiences and attitudes of incoming students in 1989/90. Those who were more experienced with computers with higher skill levels in applications such as programming, games and graphics, had more positive attitudes. The 1997 survey also assessed Internet experiences, skills, competence and comfort. Students who had more prior exposure to computers reported higher skill levels with the Internet than those without.

Expertise in use of Internet for instructional purposes may take some time to be realized. Many frequent Internet users in schools usually first master skills in computer use for at least five years or more (Verhoeven et al., 2020). This is a long-term process that builds on the users' increasing expertise and willingness to use the technology in new ways, and on what they learn from others in the classroom as they use computers. Users need more time to gain the experience in regard to using computers in order to use to the Internet better in their classrooms. Successful experience of using computer motivates users to use Internet in future learning activities, investing more to develop computer literacy in order to maximize the positive effects of Internet in classrooms (Wen & Mei, 2000).

Mohammed et al (2016)'s study revealed that positive attitudes towards the Internet relate to increased computer use. End users with longer computer exposure time and more opportunities to use the computer on campus were found to have more positive attitudes toward use the Internet. Students with differing levels of computer experience tend to differ significantly in their preferences of the Internet services. Students with more computer experience are in better control while online, compared to those with less experience. The experienced students appear more independent while online. Such participants tend to be certain of what they are looking for and can navigate through the web with ease (Batane & Ngwako, 2017).

Further, a study by Noyes and Garland(2008) considering subjective measures of 217 people, showed that books were perceived more favorably than the Internet on all of the affective scales of Kay (1992)'s Computer Attitude Measure. Indeed, respondents preferred to learn from books rather than computers, and expected to learn more from them than computer-based material. As a result of a short experience in computer use, people have a strong affection for books, prefer them to Internet for learning purposes, and expect to learn more from them. Prediger (2004)'s article in mathematics pedagogy illustrated the idea of diversity as a chance by seven scenes of concrete classroom situations. In order to find such chances, it is important to realize that students do not only vary in their pace of work and their proficiency level but also in dimensions such as their prior experiences with a particular technology. The utilization of Internet services is influenced by prior experience in working with computers. For many students, it is simply easier to proceed with using media that are familiar rather than learn how to adopt techniques that rely on unfamiliar technology (Novek, 1999) and to develop new production skills. The variety of media used, then, may be constrained due to a lack of familiarity with effective strategies or by the relatively complicated skills required.

This study investigates whether previous computer experience is related to student attitudes towards using the Internet. The study is specifically conducted in Africa, at a Ugandan university, where there is an increase in Internet investments within education—and yet there is a paucity of research in its utilization for academic purposes.

3. Material and Methods

The study employed a survey design to elicit information concerning students' previous experience with computers and their attitudes towards using the Internet to support learning. This design was found desirable because it allowed the collection of a large amount of data from a large section of respondents, making the data representative enough to provide the true picture on the ground. The quantitative methods provided numerical data for determining the degree of relationship between variables under study, while the qualitative methods were used to triangulate data collected using the quantitative method.

3.1 Study Population and Sample

In order to obtain both a desirable accuracy and a desirable confidence level with minimum cost, the researchers surveyed a relatively a large number of respondents (Arsham, 2005). Out of a total number of 1,060 final year undergraduate students doing ICT as a compulsory subject at KYU, 280 respondents were chosen as the target sample.

3.2 Research Instruments

Two research instruments were used; a questionnaire, and an interview guide.

3.2.1 Questionnaire

All the respondents in this study completed the questionnaire. The questionnaire the "Internet Attitude Scale (IAS)", similar to one designed by Lloyd and Gressard (1984) in the United States of America, was modified and revalidated by the researchers based on the Ugandan context. The questionnaire represented twelve items developed in a Likert-format. These were the dependent variables for which the students indicated the extent to which they agreed or disagreed with statements written on a five-point scale ranging from "Strongly Agree" (SA) to "Strongly Disagree" (SD).

3.2.2 Face-to-Face Interviews

The protocol for the interview discussions included items designed to explore relevant issues concerning the previous computer skills and students' attitudes towards use of the Internet. Qualitative interviews assisted the researchers to illicit reflective responses that went further than the type of responses typically yielded by the questionnaires, which gave no opportunity for probing into answers given by the respondents (Kombo & Tromp, 2006). The Open-ended structured interview protocols were about students' attitudes towards use of Internet with reference to previous computer skills.

3.2.3 Validity of the Survey Instruments

To establish the scientific credibility of the study, the researchers used some lecturers at the place of work who were knowledgeable in the field of educational technology and experienced in teacher education to review the instruments for clarity. The reviewers later gave specific suggestions on how to improve each of the items. Some items in the survey instruments that were double barreled in nature were revised basing on the reviewers' suggestions. Content Validity Index of 0.75 was obtained, and was considered to be appropriate (Shariati et al., 2018).

3.2.4 Reliability of Instruments

The questionnaire was pilot tested on a group of 20 students who were final year undergraduates from another public University in Uganda for refinement. The subjects in the pilot study were selected to improve the instrument's reliability as well as familiarization with the research situation (Ghazali et al., 2019). Of these respondents, 55% (11) were females, and 45% (9) were males, and were all reported to have had computer experiences prior to joining university.

3.3 Procedure of Data Collection

The researchers sought permission from the office of the Academic Registrar, Kyambogo University, for data collection from the university. Documented permission was granted through an official letter. The researchers identified some research assistants, who had been instructors at KyU, who helped in data collection. The research assistants were made to understand the purpose of the research and what would be done with the data once it had been collected.

3.4 Data Analysis

Statistical data analysis was used to arrive at findings. This process was accomplished in order to assess the dimensions of students' attitudes toward Internet use. Rated scores were treated as interval data suited for quantitative analysis. Relationships between the independent variables and responses to the items were explored using a t-test. A t-test was regarded most suitable since the study involved an evaluation of differences in means between two groups for each hypothesis; a-test was most appropriate for comparing mean (Bray & Thomas, 1995). Inferential statistics were calculated with the aid of SPSS, which reports exact P values; hence a P value of less than 0.05 was interpreted as significant. Thematic analysis was used to analyze the qualitative data. This involved transcription followed by coding to develop the underlying themes of the study.

4. Results and Discussion

The questionnaire achieved a respondent rate of 83 percent. The returned questionnaires were entered into Microsoft Excel software and checked for accuracy. The independent

variable (previous computer skills) was coded to aid in data entry. The results are summarized in Table 1.

Table 1: Respondents' views on the relationship between the variables of previous computer skills and students' attitudes towards the use of Internet

Prior Computer Skills		Yes		No	
		Count	Col %	Count	Col %
1) Easy	Disagree	42	56.0%	155	75.6%
	Indifferent	16	21.3%	18	8.8%
	Agree	17	22.7%	32	15.6%
2) Prior knowledge	Disagree	33	44.0%	165	80.5%
	Indifferent	16	21.3%	17	8.3%
	Agree	26	34.7%	23	11.2%
3) Not worried about ability	Disagree	41	54.7%	141	68.8%
	Indifferent	14	18.7%	31	15.1%
	Agree	20	26.7%	33	16.1%
4) Long experience reduces tension	Disagree	55	73.3%	163	79.5%
	Indifferent	10	13.3%	15	7.3%
	Agree	10	13.3%	27	13.2%
5) Not hesitant	Disagree	42	56.0%	162	79.0%
	Indifferent	11	14.7%	20	9.8%
	Agree	22	29.3%	23	11.2%
6) Spend more hours	Disagree	34	45.3%	112	54.6%
	Indifferent	16	21.3%	46	22.4%
	Agree	25	33.3%	47	22.9%
7) Confident	Disagree	45	60.0%	160	78.0%
	Indifferent	15	20.0%	13	6.3%
	Agree	15	20.0%	32	15.6%
8) Do not need experienced person	Disagree	34	45.3%	125	61.0%
	Indifferent	16	21.3%	33	16.1%
	Agree	25	33.3%	47	22.9%
9) solve it without help from someone to	Disagree	34	45.3%	95	46.3%
	Indifferent	14	18.7%	37	18.0%
	Agree	27	36.0%	73	35.6%
10) I like getting on research project	Disagree	44	58.7%	151	73.7%
	Indifferent	13	17.3%	23	11.2%
	Agree	18	24.0%	31	15.1%
11) Happy in many hours	Disagree	39	52.0%	144	70.2%
	Indifferent	15	20.0%	24	11.7%
	Agree	21	28.0%	37	18.0%
12) Confidence from skills	Disagree	24	32.0%	131	63.9%
	Indifferent	13	17.3%	24	11.7%
	Agree	38	50.7%	50	24.4%

Relationships between the independent variable and responses to the items were explored using a t-test. A t-test was regarded most suitable since the study involved an evaluation of differences in means between respondents with and those without previous

computer experience. In such a scenario, a-test was most appropriate for comparing mean (Bray & Thomas, 1995).

4.1 Testing the Relationship between Previous Computer Skills and Students' Attitudes towards the Use of Internet

Simonson and Schlosser (2007) argues that users' previous computer skills minimize the anxiety to Internet use. Lack of prior knowledge and skills of a given medium impacts students' attitudes and can result into failure in use. It is widely assumed that participation by students in using the Internet can be hampered by their anxiety towards computers, which in turn is reflective of their attitudes towards this technology. Therefore, students who have prior experience with computers stand better chances and can use complex methods for finding information (Pennanen & Vakkari, 2003).

In this study, students were requested to indicate on the questionnaires whether they had received any computer skills prior to joining KYU. Acquiring computer skills is a most important aspect when considering use of Internet. This aspect is derived from the fact that students have an important role to play in their academics and need to be sure of what they are doing particularly with reference to Internet integration (Pennanen & Vakkari, 2003).

4.2 Study Hypothesis

There is no significant relationship between having previous computer skills and students' attitudes towards use of Internet. In order to test the above hypothesis, data was collected from the questionnaire containing 12 items concerning the relationship between the having previous computer skills and students' attitudes towards use of Internet. Students' views in this regard were captured.

Table 2: Relationship between previous computer skills and attitudes towards the use of the Internet

	N	Mean	Std. Deviation	t-statistic	df	p-value
Yes	75	21.2933	5.56964	5.263	278	.000
No	205	17.9073	4.44092			

According to the t-test results regarding previous computer skills among the respondents as indicated in the Table 2, the p-value is lower than the pre-determined level of significance (0.05 > 0.000). The results show that respondents with previous computer skills have a higher mean score in attitudes than those without. This implies that there were significant differences between the means at 0.05 level of significance. This indicates that there was a significant relationship between having previous computer skills and attitudes of respondents towards use of Internet.

The study therefore rejects the null hypothesis that there is no significant relationship between having previous computer skills and undergraduate students' attitudes towards the use of Internet. It is against this that the study concludes that the KYU undergraduate students' attitudes towards the use of Internet are dependent on

having previous computer skills. These findings corroborate previous scholarship which demonstrates that students' attitudes highly result from having previous computer skill (Luan et al., 2005; Rugayah et al., 2004). It is widely assumed that participation of students with the Internet is hampered by their negative attitudes towards computers, which in turn is a consequence of their meager skills in computer use. Accordingly, students who have prior computers skills stand better chances since they can use advanced methods for finding information than those who have not.

4.3 Interview Data

For purposes of triangulation and supplementing data from questionnaires, interview protocols were held by selecting participants from the same sample on a voluntary basis. Interview items focused more on the students' opinion about modes of digital media present at KyU, some of the ICT skills obtained by students before they had joined KyU and whether there was influence of previous ICT skills on students' attitudes toward Internet use at KyU. The researchers conducted the interviews and made some notes during the sessions. The interviews were transcribed verbatim.

Regarding modes of digital media present at KyU, the respondents reported that there were facilities available at the university, particularly used by students. One student for example, made an assertion regarding these digital tools, stating:

> "*We have computer labs at different departments equipped with PCs, LCD projectors, and interactive boards and also use mobile smart phones owned by students*."

This response, which reflects other interviewees' views, reveals that there are some tools already available to students to access the Internet at university. Since students had exposure to such tools, they were at an advantage because they were able to access the university portal for further academic information.

Using the interviews, the researchers also wanted to find out about some of the ICT skills obtained by students before they had joined KyU. One student for example, explicitly said:

> "*Since I joined this university from a secondary school that used to offer computer education, I already had some ICT skills…I had already acquired skills and knowledge in spreadsheets, presentations, e-mail, Internet, computer file navigation, and database*."

The above response reveals that some students already had ICT skills prior to joining KyU. It is most probable that such students took advantage of this prior knowledge to access the Internet during their studies at KyU. Further, students were asked whether their skills in using the Internet while at KyU could have been an influence of previous ICT skills they had before they joined the university. In response, one of the respondents explained:

"It is valuable to have computer skills prior to Internet surfing. These skills have enabled me to use Internet to complement information from library textbooks. Skills guide me on how to search and find pretty good sources, and in a shorter time. I find it easy and enjoyable to use the Internet basing on my prior experience. I do not have any difficulty with use of Internet. I find it very easy to use… I really like the Internet. I am lucky to have got ICT skills before joining the university. It's really pleasing, and it makes me have no trouble with doing the computer-based research assignment, because I have to use the Internet."

This response corroborates the findings from the quantitative data that students with previous computer experience thrived better in using the Internet for their academic work (Awofala et al, 2017; Balogun & Olanrewaju, 2016; Opoku & Kuranchie, 2014). This evidence therefore shows a positive relationship between previous computer experience and attitudes towards Internet use.

5. Recommendations

Basing on the findings of this study, it was recommended that students be incentivized in order to develop positive attitudes toward the e-technology. Also, learners should be introduced to use of ICT as early as primary and secondary levels of education to improve on the level familiarization while at university.

6. Conclusion

Students who had more prior exposure to computers reported higher skill levels with the Internet than those without. Internet users need more time to experience using computers in order to use the Internet better for academic purposes. Successful experience of using computer motivates students to use Internet in future learning activities and invest more in computer literacy in order to maximize the positive effects of the Internet (Hong et al., 2003). The study therefore rejects the hypothesis that there is no significant relationship between having previous computer skills and undergraduate students' attitudes towards the use of Internet.

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