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Awareness of Digital Footprint among Undergraduates in a Nigerian University

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ABSTRACT

Information and communication technologies (ICTs) have become ubiquitous in modern society, and their use has given rise to the concept of digital footprint. Digital footprint refers to the trail of data that individuals leave behind as they interact with the internet and digital devices. While ICTs offer numerous benefits, they also raise concerns about privacy and the potential for personal information to be misused. This study assessed the awareness of digital footprint among undergraduate students in a Nigerian university. Descriptive research design was employed using a survey questionnaire. A total of 381 undergraduate students participated in the study. The questionnaire assessed participants' awareness of digital footprint through a series of Likert-scale items. The findings revealed that the participants had a good understanding of digital footprint. They were aware of the potential risks associated with sharing personal information online and took steps to protect their privacy. However, there was a significant difference in the awareness of digital footprint between male and female students, with female students exhibiting a higher level of awareness. The study suggests that undergraduate students in the selected Nigerian university have a good understanding of digital footprint and are taking steps to protect their privacy online. We conclude that there is a need for continued efforts to raising the awareness on digital footprint, particularly among male students. Educators, policymakers, and parents should play a role in educating individuals about the importance of digital footprint management and the potential consequences of sharing personal information online.

Keywords: ICT, digital footprint, data protection, internet, digital citizenship

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INTRODUCTION

The 21st century has witnessed an upsurge of breakthrough in information and communication technology (ICT). These technologies have in no small ways influenced our day-to-day activities as human, and thus all sectors of human endeavor are experiencing an equal turnaround in approach to their activities. Education is one of the most influenced fields. The influx of technologies in education have in no small ways create diverse learning opportunities and learners' engagement (Koledafe, 2018). ICT is an umbrella that includes any communication device or application, encompassing, radio, television, cellular phones, computer, and network hardware and software, satellite system and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning (Amutha, 2020). ICT in education has been continuously linked to higher efficiency, higher productivity, and higher educational outcomes, including the quality of cognitive, creative and innovative thinking (Anikweze & Kanu, 2018). It has improved the quality of education, expanded learning opportunities and made education accessible, it is therefore not a gainsaying that nations around the world are investing heavily in the ICT for educational purposes (Amutha, 2020, Chinenye et al., 2022).

The Internet and the World Wide Web (WWW) serve as the foundational infrastructure for most ICT resources utilized in educational settings. These digital platforms facilitate a ubiquitous environment where students can engage in collaborative tasks and harness search engines for information retrieval and learning activities. The utilization of these online tools often involves the exchange of data, which can be leveraged to tailor user experiences on the Internet. This exchanged data, commonly known as a digital footprint, comprises the traces left behind when using internet-based ICT resources and tools. Digital footprints is a trail of user data points collected from online communities and networks which can assist in better understanding human behaviour and social interaction (Golder & Macy, 2014).

A digital footprint is not solely the result of active user engagement, such as content creation and sharing; it is also shaped by algorithms and the actions of other Internet users. It represents the aggregate data generated through both active and passive online participation (Lutz & Hoffmann, 2017). Digital footprints can include but not limited to logins, bookmarks, website visits, geolocation, postings, ratings, purchases, search keywords, and sharing (Olipas, 2023b). Research into digital footprints has revealed that users' online activities can be profiled based on their digital traces, often without their knowledge (Olipas, 2023; Yolcu, 2023). Such profiling can yield extensive personal

information, including insights into an individual's worldview, political and religious beliefs, educational background, and even their physical address (Surmelioglu & Seferoglu, 2019).

Statement of the Problem

In Nigeria, the prevalence of internet usage is a significant aspect of the country's digital landscape. Approximately 71.85% of the population, about 214.8 million people, are active internet users (Internet World Stat, 2022). This statistic is particularly noteworthy given the country's median age of 17.2 years, as reported in the 2023 demographics (Worldometer, 2023). This youthful demographic suggests that a substantial portion of Nigerian internet users are school-aged, highlighting the importance of digital literacy and awareness among this group. Despite the high rate of internet penetration and the extensive daily use, there is a noticeable gap in research regarding the awareness of digital footprints among Nigerian youth. Given the potential risks associated with digital footprints (Olipas, 2023a, 2023b; Yolcu, 2023), it is crucial to assess and enhance the level of awareness among young Nigerians. This study therefore aims to assess the awareness of digital footprint among undergraduate students in a selected Nigerian university. The following research questions were raised to further guide the study:

1. What is the level of undergraduates' awareness of digital footprint?
2. Is there any difference in the awareness of digital footprints among undergraduate students based on gender?

Research Hypothesis

H_{01}: There is no significant difference in the awareness of digital footprint between male and female participants.

MATERIAL AND METHODS

This study deploys a descriptive research method using the survey approach. Descriptive research method involves the systematic collection and analysis of data from a large population to describe the characteristics of the population as they appear based on the phenomenon under consideration (McCombes, 2019). The study was conducted in a higher educational institution in Nigeria, with a population estimated at 45,000. A sample of 381 students was drawn as suggested by the Research Advisors (2006). The research only focused on eight out of the 16 faculties available at the institution. The selected faculties are Arts, Life Sciences, Education, Social Sciences, Management Sciences, Agricultural Sciences, Engineering, and Communication and Information Sciences. The sample consisted of male and female students and were randomly selected from the selected faculties in the

University. A researcher-designed questionnaire was developed for this study. The instrument was titled Awareness of digital footprint among undergraduates (ADFAU). It consists of two sections, namely Section A and Section B. Section A sought information about the participants' demographics while the second section presented a Likert-scaled questionnaire items. Section B asked participants about their level of awareness of digital footprint using a simple worded questionnaire items consisting of positive and negatively worded questions, to elicit participants' true response on their awareness to digital footprint. The reliability was determined using Cronbach alpha and found to be 0.92. The questionnaire was distributed using the Google form online tool (https://forms.gle/Akzo29DLtf6N95Cf9), through various students' chats, and class groups. Participation was voluntary, and no person was coerced or forced to be involved in this study. Also, the participants were informed of the intention of the study before sending the link to the questionnaire. Descriptive statistics (mean and standard deviation) and inferential statistics (independent sample t-test) were used in analyzing the results.

RESULTS

Of the total 381 participants that responded to the research instrument, only 331 responses were complete and valid. The gender distribution for the study is presented in Figure 1.

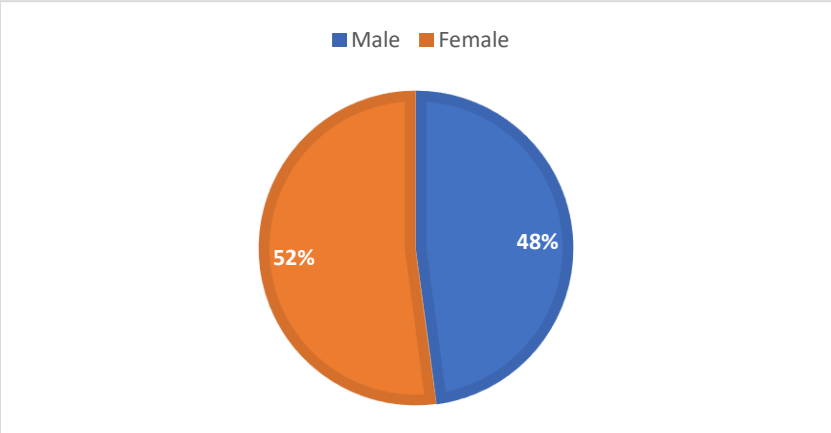


Figure 1: Demographic distribution of the sample for the study.

As shown in the Figure 1, 173 (52%) of the participants were female students, while 159 (48%) male students were involved in the study.

Research Question 1: What is the level of undergraduates' awareness to digital footprint?

To determine the level of awareness of the undergraduate students to digital footprint, a researcher-designed questionnaire was administered to the research participants. The responses of the participants were then retrieved and analyzed using descriptive statistics (frequency and percentage).

Table 1: Descriptive Statistics

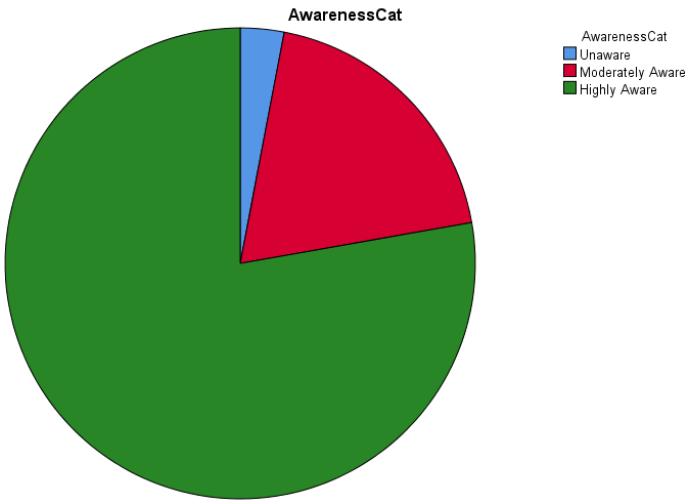
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Awareness Category	333	25	27	52	47.14	4.785
Valid N (listwise)	333					

From the table 1, the minimum score of the respondents is 27 while the maximum score is 52. Three levels of awareness were considered which are Unaware, Moderately Aware and Highly Aware. Each level has a class interval of approximately 8. The frequency count of each level of awareness of the respondent is given in Table 2.

Table 2: Awareness Levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unaware	10	3.0	3.0	3.0
	Moderately Aware	64	19.2	19.2	22.2
	Highly Aware	259	77.8	77.8	100.0
	Total	333	100.0	100.0	

From Table 2, it can be observed that only 3.0% of the participants are unaware of their digital footprint. About 19.2% of the participants were moderately aware of their digital footprint, while about 77.8% of the participants were highly aware of their digital footprint. It can therefore be concluded that majority of the participants were highly aware of the concept of digital footprint in their usage of internet. This result is graphically explained in the figure x using a pie chart.



Hypotheses Testing

H_{01}: There is no significant difference in the awareness of digital footprint between male and female participants.

To determine whether there was significant difference among male and female undergraduate awareness of digital footprint among the participant, analysis of independent sample t-test was carried out and the result is as shown in Table 3.

Table 3: Independent sample t-test to determine the difference in awareness of digital footprint among male and female participants.

	Gender	N	Mean	T	Sig (2 tailed)	Std. Deviation	Std. Error Mean
Mean Awareness	Female	173	3.66	1.99	0.17	0.38	0.30
	Male	159	3.59			0.36	0.27

As seen in the Table 2 the independent sample t-test was used to determine if there is a difference in the awareness of digital footprint among male and female students. The p-value is given as 0.17 (t=1.99) is greater than the significance value (0.05), therefore the null hypothesis is rejected, and the alternative hypothesis was accepted. Therefore, it can be concluded that there is no statistical difference in the awareness of digital footprint among male and female students. This is also statistically evident in the mean score of male students (3.59) and female (3.66) students. Both male and female students are fully aware about digital footprint.

DISCUSSION

Digital footprint is an important construct in today's internet enabled society. Every online transaction by an individual generates a certain amount of internet data which is referred to as a digital footprint in this study. With the growing population of young people in Nigeria making up the largest proportion of internet users in the country, it is important they are aware and take responsibility for their contribution to digital footprint. This study examined the awareness of digital footprint among undergraduates in a Nigerian university and found that there exists a good understanding of digital footprint among the participants. The findings also have an implication on their behaviour on the internet. Sürmelioğlu & Seferoğlu (2019) also reported a similar outcome on undergraduate awareness of digital footprint across 41 Turkish universities. This finding also establishes the qualitative study of Yolcu (2023), that undergraduate students have full awareness of digital footprint. The reason for this level of awareness cannot be established, it is more of an inert consciousness. The concept of digital footprint is not taught in the Nigerian secondary schools, yet the students are still conscious about their activity on the internet. It is important that the concept be included in the school curriculum so students can have full knowledge of their digital footprint and how it can be managed (Parkin, 2022).

The study also reported same level of awareness of digital footprint among male and female students. Male and female students have similar level of awareness of digital footprint concept. This finding substantiate the reports of (Olipas, 2023a, 2023b; Parkin, 2022; Yolcu, 2023) where gender neutrality was reported about the awareness of digital footprint among their respective focus group. However, Mahmoud (2023) reported that female students had greater level of awareness in digital footprint compared to the male students. Additionally, Subasi et al., (2023) reported a higher level of awareness of digital footprint among female students.

CONCLUSION

The study, therefore, suggests that undergraduate students in the selected Nigerian university have a good understanding of digital footprint and are taking steps to protect their privacy online. However, there is a need for continued efforts to raise awareness about digital footprint, particularly among male students.

RECOMMENDATIONS

Educators, policymakers, and parents should play a role in educating individuals about the importance of digital footprint management and the potential consequences of sharing personal information online.

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