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ELECTRONIC INFORMATION MANAGEMENT PRACTICES OF POSTGRADUATE LIS STUDENTS IN NIGERIA

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ABSTRACT

Aim/Purpose	This study examined the practices, experiences, and challenges of postgraduate Library and Information Science (LIS) students in Nigeria in managing electronic documents.
Background	Many universities have transitioned from the physical to a virtual environment for both lecture and supervision since the outbreak of the COVID-19 pandemic in 2020. This transition has benefits and challenges for people, especially regarding managing electronic documents. This study examined the electronic information management practices of postgraduate LIS students in Nigeria.
Methodology	The population was 1,358 postgraduate students of LIS schools in Nigeria. A sample size of 309 was obtained using the Taro Yamane formula and a purposive sampling technique.
Contribution	There is a dearth of studies on electronic information management of postgraduate students in Nigeria. This study fills the gap. The study highlights areas of improvement and training needs of postgraduate researchers with respect to the management of electronic documents.
Findings	File naming practice was poor among the respondents, as fewer than 20% always saved their files and folders by date and year. Only 14 (6.7%) always used version

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numbers to save documents with multiple versions, while more than 50% never did. Email boxes, flash drives, and smartphones were popular storage media among the respondents. Although the majority admitted to always or sometimes updating their antivirus and avoiding suspicious sites, about 30% do not use Virtual Private Networks (VPN), do not change their password regularly, and use the same password for different accounts. Furthermore, only 13.9% use web-based reference systems like Mendeley and Zotero to keep the documents they find online. About 90% had experienced a total loss of electronic files. File management practices were independent of gender and program level.

Future Research The data management practices of postgraduate researchers should be examined in future studies.

Keywords COVID-19 pandemic, electronic information management, file naming practices, LIS postgraduate students, personal information management

INTRODUCTION

Electronic Information Resources (EIRs) have become indispensable to students and researchers as more information resources are created, either born digital or digitized. EIRs became widespread in 2020 with the emergence of the COVID-19 pandemic and the attendant lockdown it caused worldwide. With limited access to physical libraries, students, teachers, and researchers were constrained to use the resources that were available over the internet, and many libraries supported their patrons' ongoing research by sharing links to e-resources in their digital libraries and institutional repositories (Omeluzor et al., 2021). Prior to the lockdown, there had been a gradual shift from the use of print materials to electronic information resources, especially among academic library users (Azonobi et al., 2020), which may be linked to the portability of EIRs, the possibility of remote access and simultaneous use by multiple users, the ease of copying and pasting, as well as ease of annotation (Hasugian & Dirmansyah, 2019; Oladokun & Adeoye, 2022).

Despite their many affordances, managing EIRs poses challenges to many users. The unprecedented volume of electronic information resources now available through various websites, blogs, institutional repositories, scholarly databases, and social media (Nyangoya, 2020) leads to information overload, which has become one of the most common personal information management (PIM) difficulties (AlRukaibani & Chaudhry, 2019). Deciding what to keep or dispose of, organizing, securing, and re-finding found information when needed is an uphill task that most people may procrastinate about, leading to total loss of useful information. Besides the information overload, EIRs can be easily manipulated, replaced, and fragmented on different storage devices. Furthermore, technological obsolescence, virus attacks, the need to backup frequently, and forgetting the location of information are issues that people contend with in managing their electronic information resources (Hashemzadeh & Salehnejad, 2015; Hasugian & Dirmansyah, 2019; Warraich et al., 2018).

Personal information management (PIM) is an aspect of information behavior research that studies how people find, keep, organize, store, secure, and re-find the information they need to carry out their daily activities. PIM is "the practice and study of the activities a person performs in order to acquire or create, store, organize, maintain, retrieve, use, and distribute the information needed to complete tasks (work-related or not) and fulfill various roles and responsibilities" (Jones & Tevan, 2007, p. 453, as cited in Creegan, 2017). It is imperative that postgraduate students who are studying and researching for higher degrees learn to manage their digital collections effectively. Because of the wide scope of their research and the long duration of their programs, postgraduate students usually acquire a large volume of information resources. Often, they have to refer back to these resources even after their study is completed; hence, there is a need to adopt practices that ensure easy access to their information.

Postgraduate study can be mentally, physically, and emotionally challenging. Baju and Babalola (2017) noted that postgraduate students often suffer isolation and frustration as they move through the different stages of their program. Frustration and isolation are highest during the dissertation writing process and are one of the reasons for the high attrition rate among doctoral students (Young et al., 2019). While it is often assumed that postgraduate students, as independent researchers, possess all the knowledge and skills they need to pull through their programs, this is not always the case. The inability to effectively manage their information resources may lead to the loss of important documents, which can heighten the level of frustration and attrition of postgraduate students. Therefore, this study investigated the management of electronic information resources among postgraduate library and information science students in Nigeria.

OBJECTIVES OF THE STUDY

One of the objectives of the study was to ascertain the file naming practices adopted by postgraduate LIS students in Nigeria. Proper file naming is critical to the identification and retrieval of electronic files. As files and folders multiply, there is a tendency for researchers to forget file names and their locations, which can be frustrating and even lead to total loss of documents. Another critical component of personal information management examined in the study is file storage practices. Storage devices differ not only in their capacity but also in their suitability for long-term storage (Briney, 2015). Thus, the type of storage devices adopted by researchers can determine the fate of their files. While file storage seems natural and a common practice for researchers, file backup is not. File backup is a deliberate effort to create additional copies of digital documents using different devices. Incidentally, many people are not intentional and consistent in their file backup practices (Kljun et al., 2016, as cited in Dinneen & Julien, 2020). Therefore, this study examined the file backup practices of postgraduate LIS researchers in Nigeria. The study also determined the file security strategies deployed by the participants. Electronic file security has featured more in cybersecurity papers than in PIM research. The study focused specifically on keeping, organizing, and re-finding information. A recent systematic review of studies on file management by Dinneen and Julien (2020) also has no survey on file security practices, indicating a gap in this area.

In addition, this study investigated how postgraduate LIS students in Nigeria re-find the information they encounter on the internet. Keeping found things found, a concept popularized by Jones (2008), depicts the challenges people face in managing the information resources they find either by serendipity or by deliberate, painstaking searches. Given the reality of information overload, information fragmentation due to the multiple devices for information storage, the variety of search platforms, and the volatility of web addresses, it becomes necessary to understand the strategies that postgraduate LIS researchers in Nigeria employ to keep their found information found. Furthermore, the study identified postgraduate LIS researchers' challenges while managing their electronic files. Otopah and Dadzie's (2013) study on the PIM practices of the students at the University of Ghana reported inadequate skills, information fragmentation, inappropriate habits, and imperfect memory as the drawbacks to effective information management practices of the students.

HYPOTHESES

As indicated by extant literature, personal factors have been established to influence PIM practices. Alotaibi and Alshehri (2020) reported differences in some information security practices between male and female users of digital devices such as computers, mobile phones, tablets, etc. The study, which was conducted among the staff and students at the University of Plymouth, United Kingdom, found that females were more vulnerable online than males. A similar finding was reported by McGill and Thompson (2021), who found a significant difference in the information security and privacy behavior of the male and female participants, with the females ranking lower than males. On the other hand, Park and Chai (2020) found gender differences in the information security behavior of

students who have had online information security education, with females more likely to have better information security behavior than men. Based on the inconsistencies in the findings of extant studies, it was hypothesized in this study that:

$H0_1$ File management practices of postgraduate LIS students in Nigeria are independent of gender.

Finally, while other personal variables such as gender, age, rank, university affiliation, spatial ability, and personality have been examined in relation to PIM practices of individuals, the role of program level or level of study has not received much attention. Therefore, the study hypothesized that:

$H0_2$ File management practices of postgraduate LIS students in Nigeria are independent of the program level.

LITERATURE REVIEW

Personal information management (PIM) is a relatively new area without many empirical studies in Nigeria. Most existing studies were conducted in Pakistan, Iran, Kuwait, Sri Lanka, and the United States of America and among librarians, academics, engineers, teachers, undergraduates, and postgraduate students. As Alon et al. (2020) rightly observed, most PIM studies did not examine all PIM practices comprehensively but focused on specific ones. Information security practices, in particular, have not been given due attention, creating a major gap in the PIM literature. Consequently, extant literature was reviewed thematically in order to understand the file naming, storage, backup, and refinding strategies employed by various user groups. File naming is a foremost activity in PIM that ensures information identification, organization, and retrieval. Poor file naming and organization can lead to frustration and total loss of documents. Hicks et al. (2008) investigated the file management practices of engineers. The participants used various parameters such as the title of the document, the purpose of the document, the project title, and, less commonly, the date.

Like every other PIM, file naming is a personal activity in the sense that individuals often have to adopt a combination of strategies that work for them. Briney (2015) recommends a number of best practices that people can adapt to suit their purposes. One such is adopting a consistent convention for file naming, organization, and version control. Consistent naming conventions can be very helpful for individual researchers and those involved in collaborative research. A study conducted by Creegan (2017) showed that librarians in Auckland, New Zealand, used idiosyncratic rather than shared conventions in organizing their information, making it difficult for other librarians to retrieve them. In other words, information sharing among the librarians was impeded by the lack of a standard and shared file organization system. Reyes (2016), on the other hand, reported the use of consistent file naming conventions among students in Boston, USA.

File duplication is one of the challenges that EIR users face. File duplication occurs when two or more files contain the same information. Updating the disparate files and identifying the latest version becomes a challenge and may lead to overwriting a recent version with an older version. Henderson (2011) considers versioning an effective way to address this problem. However, versioning has not been the focus of the extant literature and is also not a common practice among users. Henderson examined the challenge of file duplication among knowledge workers in an American university. The study found that nearly half of respondents have duplicate files on their devices, which hinders effective information retrieval. Although the respondents often used prefixes and suffices such as 'version 1,' 'final draft,' date or month of revision, or download to identify different versions of the same document, more than 40% admitted they sometimes lost track of which document was the latest version since they had no systematic way of identifying them.

PIM ensures easy retrieval and re-use of electronic documents that people create or find through deliberate search or serendipitously, which they store for future use. Briney (2015) asserted that not all devices are suitable for long-term storage; thus, researchers must be cautious about their choice of

storage device. The author recommended the 3-2-1 backup rule, which entails storing the same information in three different storage devices to bypass each device's inherent weaknesses. Hashemzadeh and Salehnejad (2015) conducted a study to understand the information management of Iranian students. The study found that students mostly use computers, external hard drives, mobile phones, and email for file storage, and they organize information based on content. Cloud storage and other content management software, such as Medley, were rarely used. Another study by Sedghi et al. (2015) investigated the PIM practice of faculty members of a medical university in Iran. The findings of the qualitative study revealed that all the participants saved their files on the computer, and more than half used flash drives, mobile devices, and email, but the use of bookmarks and PIM apps was particularly low. A similar finding among university students in Islamabad was reported by Faize et al. (2018), where PC/laptop topped the list of their preferred storage media. This was followed by flash drives, sky drives, mobile phones, and hardcopies.

On the other hand, Reyes (2016) found that students in Boston, USA, used cloud storage services like Dropbox or Google Drive to back up their electronic files and documents. Similarly, AlRukaibani and Chaudhry (2019), from their study of graduates in the Department of Information Studies at Kuwait University, found that besides storing their documents on desktop computers, the participants also used shared drives, cloud storage, bookmarked websites, email correspondence, and favorite lists.

Re-finding previously found information from the internet or private collection can be Herculean amidst the flood of electronic information and the disparate storage devices we use to store and transfer information as we transit from one work context to another. Ameen's (2016) study assessed the PIM of 221 master's students at the University of the Punjab, Pakistan. The results showed that the downloads on personal computers, self-created digital documents (e.g., MS Word, Excel, Google Docs, etc.), URLs, and hyperlinks were the most frequently used tools for re-finding found information. Ali and Warraich (2020) also examined students' use of mobile devices for information management. Among the information-keeping practices adopted by mobile phone users was sending information to others through email, SMS, and social media, taking screenshots, and saving draft documents on their phones. Onuoha's (2016) study of undergraduates in the Department of Information Resources Management at Babcock University, Nigeria, revealed that students managed their files by organizing them in folders and tagging related files. The use of cloud services and social bookmarking sites was very low. Finally, Alon et al. (2020) conducted an online survey to identify the gap between the ideal and actual PIM behavior of higher education students in Israel as perceived by the students. The aim was to identify the PIM training needs of the students. The study found a significant difference between the ideal and actual PIM behaviors of the students for 90% of the PIM practices.

METHODOLOGY

An online survey was conducted to ascertain the electronic information management practices of postgraduate LIS students in Nigeria. The researchers first obtained the population of postgraduate students from Heads of Departments, postgraduate program coordinators, and class governors. From a population of 1,358 postgraduate students, a sample size of 309 was calculated using the Taro Yamane formula. The formula was to ensure precision and adequate sample size. A structured questionnaire with a 3-point Likert scale was used to elicit data on the electronic file management practices of the students. The instrument was pre-tested among postgraduate students of Babcock University from departments that are not related to LIS. The Cronbach's alpha coefficient for each of the constructs was above 0.7. The survey was conducted online because most public universities in the country were not accessible due to the strike action by the Academic Staff Union of Universities (ASUU) at the time of the study. The Google form link for the survey was sent to the Heads of Departments and program coordinators, who shared it on their various school platforms. A response rate of 68% was achieved. Data was downloaded into Excel sheets and later exported to the

Statistical Product and Service Solution (SPSS) version 23. Descriptive and inferential statistics were used to analyze the data. Frequency and percentage distribution were used to summarize the data and show the relative distribution of the responses in terms of electronic information management practices. Means were used to ascertain the typical response, while standard deviation indicates the variability in the responses. A chi-square test was conducted to ascertain whether respondents' attributes, such as gender and level of program, are related or independent.

RESULTS AND DISCUSSION

The results showed that 98 (46.9%) respondents were females, while the rest were males. The majority (68.9%) were Master/MPhil students, while the others were PhD or PGD candidates. Most participants (65.0%) were between 31 and 50 years old. The participants were from different LIS schools running postgraduate programs in Nigeria. Table 1 shows that more than half of the respondents sometimes saved their files with their names, while almost the same number sometimes used their lecturer's or the project's names. This finding agrees with that of Hicks et al. (2008). Over 60% always use any name they can easily remember, and more than half sometimes use a combination of their names, titles, course/project titles, etc., to save their documents. They also sometimes used consistent naming conventions, which aligns with Reyes' (2016) findings. Furthermore, over 40% never saved their files with dates or years, and only 14 (6.7%) always used version numbers to save documents with multiple versions, while more than half never did. This finding buttresses Henderson's (2011) assertion that versioning is not a common practice among EIR users. Using personal and project names can lead to overwriting one document with another, especially when such names are not combined with other attributes like date, year, and version number. As shown in this result, the inconsistency in the use of naming conventions and the combination of attributes can also lead to confusion and loss of documents. The grand mean (M = 2.08, SD = 0.65) shows that the file naming practices of the postgraduate LIS students in Nigeria can be considered fair on a 3-point Likert scale.

Table 1. File naming practices

S/N	File naming practices	Always 3	Sometimes 2	Never 1	M	SD
1	I use my name to save my documents.	62 (29.7)	121 (57.9)	26 (12.4)	2.17	0.63
2	I use the lecturer's name to save course-related files/folders.	54 (25.8)	101 (48.4)	54 (25.8)	2.00	0.72
3	I use course code/project name.	13 (6.2)	96 (46)	100 (47.8)	2.42	.61
4	I name my files/folders with any information I can easily remember.	139 (66.5)	63 (30.1)	7 (3.4)	2.64	0.55
5	I employ different combinations of name, course/project title.	56 (26.8)	110 (52.6)	43 (20.6)	2.06	0.70
6	I use a consistent file naming convention for my documents.	86 (41.2)	91 (43.5)	32 (15.3)	2.26	0.71
7	I use dates to save my files/folders.	23 (11)	92 (44)	94 (45)	1.65	0.67
8	I save my files/folders by year created.	32 (15.3)	93 (44.5)	84 (40.2)	1.75	0.71

S/N	File naming practices	Always 3	Sometimes 2	Never 1	M	SD
9	I use the version number to save my files.	14 (6.7)	80 (38.3)	115 (55)	1.53	0.62
10	I use special characters in my file/folder names.	88 (42.1)	97 (46.4)	24 (11.5)	2.30	0.54
Grand mean					**2.08**	**0.65**

Decision rule: 1.0-1.79 = poor; 1.8 to 2.49 = fair; 2.5 to 3.0 = good

Table 2 shows the results of the file storage practices of postgraduate LIS students in Nigeria. The results show that about half the respondents always store their files on CDs/DVDs, which shows their popularity. Over 60% are sometimes saved on flash drives, and over 50% use external hard drives and smartphones. This finding agrees with Hashemzadeh and Salehnejad (2015). Although flash drives and CDs/DVDs are very good for transferring files between devices, they are not very reliable for long-term storage (Briney, 2015) because flash drives can easily get infected by viruses, and CDs/DVDs can easily get scratched (Warraich et al., 2018). The grand mean value of 2.09 (SD=0.69) indicates that the file storage practices of the respondents are just fair.

Table 2. File storage practices

S/N	File naming practices	Always 3	Sometimes 2	Never 1	M	SD
1	I save my electronic files on CDs/DVDs.	103 (49.3)	84 (40.2)	22 (10.5)	2.30	0.88
2	I store my electronic files on flash drives.	9 (4.3)	130 (62.2)	70 (33.5)	2.29	0.54
3	I store my electronic files on an external hard disk.	54 (25.8)	117 (56)	38 (18.2)	2.07	0.66
4	I save my electronic files on my smartphone.	11 (5.3)	107 (51.2)	91 (43.5)	1.62	0.68
Grand mean					**2.09**	**0.69**

Decision rule: 1.0-1.79 = poor; 1.8 to 2.49 = fair; 2.5 to 3.0 = good

With respect to file backup, the results in Table 3 show that about half of the respondents always back up their files by storing them in different storage media. The use of multiple storage media has been widely reported. While multiple storage could be a good backup strategy, it can lead to information fragmentation and pose a challenge for information updates if not well managed. In addition, less than of the respondents 50% send files to their emails, and about half sometimes used cloud storage and off-site backup strategies. These findings imply infrequent file backup among postgraduate LIS students in Nigeria and suggest the need to increase awareness of the benefits of cloud storage as a backup strategy. This finding corroborates those of Hashemzadeh and Salehnejad (2015), Onuoha (2016), and Faize et al. (2018) but negates those of Reyes (2016), AlRukaibani and Chaudhry (2019) and Dilhani (2021). Again, the grand mean (M = 2.28, SD = 0.63) shows that file backup practices are only fair.

Table 3. File backup practices

S/N	File backup practices	Always 3	Sometimes 2	Never 1	M	SD
1	I back up my files using different storage media.	105 (50.2)	92 (44)	12 (5.7)	2.44	0.60
2	I send my electronic files to my email box.	93 (44.5)	108 (51.7)	8 (3.8)	2.41	0.56
3	I store my electronic files in cloud storage (Google drive/dropbox).	74 (35.4)	114 (54.6)	21 (10)	2.25	0.63
4	I keep one of my backup files off-site.	60 (28.7)	117 (56)	32 (15.3)	2.13	0.65
5	I use an automatic file backup system.	74 (35.4)	97 (46.4)	38 (18.2)	2.17	0.71
Grand mean					**2.28**	**0.63**

Decision rule: 1.0-1.79 = poor; 1.8 to 2.49 = fair; 2.5 to 3.0 = good

With respect to file security, the results in Table 4 show that about 70% of the respondents always use strong passwords and are careful about downloading free software on the internet. More than 50% always update their antivirus and avoid clicking on random links on the internet, but less than 50% use automatic antivirus scans. Half the respondents sometimes use different passwords for different accounts or change their passwords, and more than 70% use proper names as their passwords. This implies a challenge with password management among the respondents. The results further show that only 28.7% use VPNs while browsing public networks. A VPN is software that protects users from hackers by hiding the IP address of the devices. It also encrypts the data sent by the users over the internet and blocks malicious sites. Apparently, using VPNs is not very common among the respondents, possibly because they are not conversant with it. Finally, the grand mean was M =2.28 (SD = 0.63), showing that the file's security practices were just fair.

Table 4. File security practices

S/N	File security practices	Always 3	Sometimes 2	Never 1	M	SD
1	I am careful about downloading free software from the internet.	145 (69.4)	60 (28.7)	4 (1.9)	2.68	0.51
2	I use strong passwords with upper-case and lower-case letters, numbers, and special characters.	140 (67)	56 (26.8)	13 (6.2)	2.61	0.60
3	I update my operating system and antivirus.	113 (54.1)	93 (44.5)	3 (1.4)	2.53	0.54
4	I do not click on links unless I am sure of their sources.	111 (53.1)	80 (38.3)	18 (8.6)	2.46	0.65
5	I set my antivirus to do automatic routine scans.	99 (47.3)	90 (43.1)	20 (9.6)	2.38	0.66
6	I use different passwords for different accounts.	65 (31)	104 (50)	40 (19)	2.12	0.70
7	I change my password periodically.	35 (16.8)	115 (55)	59 (28.2)	1.87	0.66

S/N	File security practices	Always 3	Sometimes 2	Never 1	M	SD
8	I use a virtual private network (VPN) on a public wireless network.	60 (28.7)	84 (40.2)	65 (31.1)	1.99	0.77
9	I use proper names like my child's name, birthdate, and marriage date as passwords.	61 (29.2)	87 (41.6)	61 (29.2)	2.00	0.78
Grand mean					**2.28**	**0.73**

Decision rule: 1.0-1.79 = never; 1.8 to 2.49 = sometimes; 2.5 to 3.0 = always

As shown in Table 5, the results on how postgraduate LIS students in Nigeria ensure continuous access to electronic resources they found earlier show that only about 30% of the respondents always create snapshots of web pages with their phones and bookmark websites. This is low compared to the over 50% who sometimes did. In addition, less than 30% always copy the contents of web pages onto Word documents, copy URLs to a Word document, or save HTML pages on their computers, while more than half did so sometimes. Regular use of digital notebooks and reference managers was reported by only 15% and 13.9%, respectively, while about half claimed they use them sometimes. In addition, more than 70% always or sometimes send URLs to their emails. These findings agree with those of Sedghi et al. (2015), Faize et al. (2018), and AlRukaibani and Chaudhry (2019). The fact that more than half the respondents sometimes used the information re-finding strategies suggests a lack of consistency in PIM practices. This is further proven by the grand mean of 2.25.

Table 5. Managing found information

S/N	Managing found information	Always 3	Sometimes 2	Never 3	M	SD
1	I create screenshots of web pages with my phone.	69 (33)	109 (52.2)	31(14.8)	2.21	0.65
2	I use bookmarks to save the URL.	65 (31)	113 (54)	31 (15)	2.16	0.66
3	I save the contents of HTML pages to a Word document.	55 (26.8)	118 (56.5)	35 (16.7)	2.10	0.65
4	I save HTML pages on my computer.	52 (24.9)	115 (55)	42 (20.1)	2.05	0.67
5	I copy and save URLs to a Word document.	56 (26.7)	123 (58.9)	30 (14.4)	2.13	0.63
6	I send URLs as an email message to myself.	43 (20.6)	109 (52.1)	57 (27.3)	1.93	0.69
5	I do not click on links unless I am sure of their source antivirus to do automatic routine scans.	99 (47.3)	90 (43.1)	20 (9.6)	2.38	0.66
6	I use different passwords for different accounts.	65 (31)	104 (50)	40 (19)	2.12	0.70
7	I change my password periodically.	35 (16.8)	115 (55)	59 (28.2)	1.87	0.66
8	I use a virtual private network (VPN) when on a public wireless network.	60 (28.7)	84 (40.2)	65(31.1)	1.99	0.77

S/N	Managing found information	Always 3	Sometimes 2	Never 3	M	SD
9	I use proper names like my child's name, birthdate, and marriage date as passwords.	61 (29.2)	87 (41.6)	61 (29.2)	2.00	0.78
Grand mean					**2.28**	**0.73**

Decision rule: 1.0-1.79 = poor; 1.8 to 2.49 = fair; 2.5 to 3.0 = good

Figure 1 presents the challenges that postgraduate students of LIS schools in Nigeria encounter while managing their electronic files. The results show that the students have experienced all the listed challenges, with about 90% reporting a total loss of electronic files. More than half of the respondents reported mix-ups of file versions, forgotten passwords, software obsolescence, information overload, and corrupted flash drives. This finding mirrors those of extant studies (Otopah & Dadzie, 2013; Warraich et al., 2018) and calls for intervention and deliberate action.

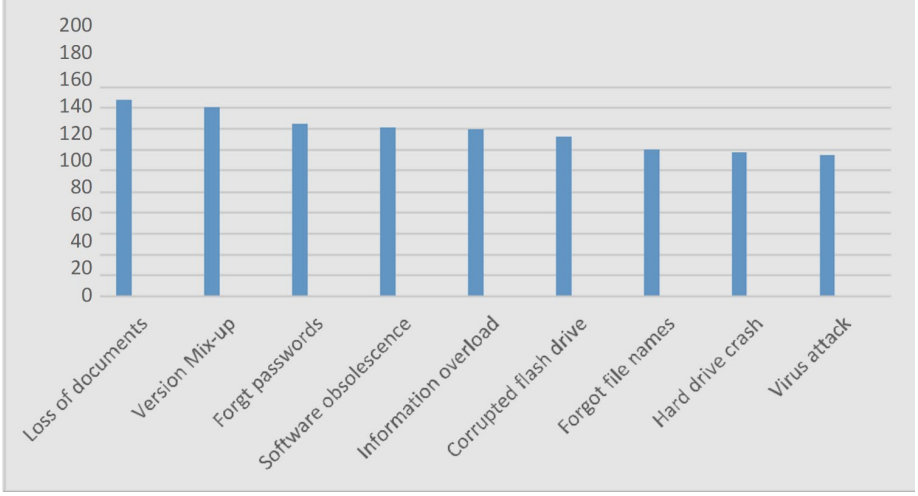

Figure 1. File management challenges

A chi-square test of independence was conducted to ascertain if gender and program level (PGD, Master, and PhD) are associated with file management practices such as versioning, cloud storage, regular backup, strong passwords, and bookmarking. The findings showed that gender had no significant association with versioning X^2 (2, N = 204) = 1.86, p = .39; cloud storage X^2 (2, N = 208) = 2.71, p =.26; regular backup X^2 (2, N = 204) = 2.34, p =.31; use of strong passwords X^2 (2, N = 207) .09, p =.96 and bookmarking X^2 (2, N = 204) = .88, p = .65. Therefore, the hypothesis that file management practices are independent of gender was not. Similarly, the Chi-square test showed that program level had no association with versioning X^2 (2, N= 204) = 7.71, p =.26; cloud storage X^2 (2, N = 208) = 4.29, p =.55; regular backup X^2 (2, N = 208) = 2.78, p =.84; use of strong passwords X^2 (2, N = 207) = .6.74, p =.35 and bookmarking X^2 (2, N = 208) = 7.32 p =.29. Based on this result, the hypothesis that file management practices are independent of a program of study was not rejected). This result implies that the file management practices of the respondents are independent of gender and program level. The findings contradict those of Alotaibi and Alshehri (2020) and McGill and Thompson (2021), who found significant differences in the practices of men and women in information security management.

CONCLUSION AND RECOMMENDATIONS

Electronic documents in various formats constitute invaluable research resources today, and managing them across disparate devices over a long period of time is a major challenge for researchers. To avoid the loss of important documents, such as research data or whole thesis, that may frustrate or even truncate their program, postgraduate researchers must adopt best practices in managing their electronic collections. The study concludes that personal information management practices of postgraduate LIS students in Nigeria are just fair as most of them have yet to adopt best practices in file management, and those who have not applied them consistently. Thus, the findings suggest a low level of digital literacy among the respondents and the need to incorporate electronic information management into the digital literacy/information literacy program. Based on the findings, the study recommends that:

1. University libraries should organize training on file management for postgraduate students across all levels. The training should emphasize reference management tools and cloud services for file storage and backup, as the use of these tools was observed to be low among the respondents.
2. Librarians should create awareness of the importance of using consistent naming conventions and encourage postgraduate students to adopt versioning to track their documents.
3. Librarians and library educators should work together to incorporate personal information management training into information literacy programs at the undergraduate level. This will help to inculcate the skills and attitude necessary to function in the digital environment into the students right from the undergraduate level.
4. More PIM studies are needed in Nigeria. Such studies should include information security practices and other aspects of PIM.

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