INFORMATION SOURCES UTILIZED FOR RESEARCH WRITING BY POSTGRADUATE STUDENTS IN AHMADU BELLO UNIVERSITY, ZARIA

MUHAMMAD MUSA HAYATU, PhD and MOHAMMED HADIZA TALATU, PhD

[1]*Department of Library and Information Science, Ahmadu Bello University, Zaria.* [2]*Kaduna State University Library, Kaduna*

Abstract

This study explored the types and sources of information utilzed by Postgraduate students of Ahmadu Bello University, Zaria for research writing. The study adopted the Information Activities in Work Task theory as theoretical framework. A qualitative case study research design purposively selected 10 students from the Department of Library and Information Science that have overstayed on the Postgraduate programme. The study revealed that the types of information needed by postgraduate students for research writing are information related to their research topics and information related to research in general. This study also found three sources of information that are available to postgraduate students of the Department of Library and Information Science for research writing to include: i) Electronic Information Resources ii) Physical Library Resources and iii) Human Sources. The two constructs of the Information activities in Work Task theory explained the types of information needed and the sources of information available to postgraduate students of the Department of Library and Information Science for research writing. The study then recommended that the Department should organize regular workshops and seminars focusing on research methodologies, data analysis techniques, and academic writing. Also, the Department should establish mentorship programmes where experienced researchers could guide students through the research process and information literacy. And that the Department should also provide institutional access to essential research materials, software, and databases that Ahmadu Bello University, Zaria Library Complex subscribes to. The study concluded that research writing constitutes a complex task and the information seeking behaviour of Postgraduate students is one of the reasons they overstay on the Postgraduate programmes.

Keywords: *Task Complexity, Information Seeking Behaviour, Research Writing, Information types, Information sources, Postgraduate Students*

Introduction

Individuals seek for information to complete tasks. These tasks may for example be a project or a health condition. A task is an everyday mental or physical activity done in order to achieve a result that has a discernable beginning an end (Bystrom, 1999; Soufan, Ruthven & Azzopardi, 2021). One characteristic of tasks that is of great importance during information seeking is its complexity. This is a measure of the types of information and sources of information to be consulted in order to complete the task. The task is simple if it requires few information types and sources to be completed. It is complex if the types of

information and the sources to be consulted are not known. Postgraduate research writing is an example of these tasks. It is considered complex because Postgraduate students find it difficult to discern the types of information and sources of information, they will need to consult to complete their researches apriori.

Postgraduate research writing in form of theses and dissertations are a significant component of postgraduate studies in some tertiary institutions worldwide. It is considered complex because PG students find it difficult to discern the types of information and sources of information, they will need to consult to complete their researches. Studies have shown that one of the factors that lead to postgraduate students' attrition (rate of drop out) and delay in the completion of postgraduate studies is research writing (Paré, 2019; Ssegawa & Kalabamu, 2020; Mkhai, 2023). Sidhu et al. (2013) found that limited knowledge in research methodology, academic writing, limited access to resources, and quality and timeliness of feedback affected the research writing process of postgraduate students from the two public universities they studied in Malaysia.

In order to reduce this complexity of research writing that is one of the reasons why postgraduate students overstay on postgraduate programs, there is the need to explore the types of information and the sources of information needed to complete postgraduate research writing. Specifically, there is the need to explore their information seeking behaviour. Information-seeking behaviour is a subset of information behaviour that encompasses understanding how people seek information and use it, what channels they use to find information and what factors influence their use of information (Thindwa, Chawinga & Dube, 2019). Exploring the information seeking behaviour of Postgraduate students is critical because it will help in identifying their information needs for research writing, it will also highlight factors that influence the use of information and challenges that postgraduate students face when seeking information for research writing. This will help libraries to design good information services geared towards research writing.

Statement of the Problem

Postgraduate studies benefit both the student and the society at large. For the student it offers greater professional, better working conditions and a higher income. While for the society, it a source of knowledge production, innovation and socio-economic development. It is also a means for improving the performance of both private and public sectors of the economy. The results and recommendations from postgraduate research writing provides solid bases and empirical evidence for decision making, policy formulation and programme evaluation to ensure sustainable development.

Unfortunately, in Nigeria Postgraduate studies is a major cause of concern for both the universities and the students. Postgraduate studies in Nigeria are plagued by high attrition rates and lengthy periods of delay in completion. This has led to frustration and stagnation in the place of work for students and a major snag for universities in terms of their world

ranking. Studies of abandonment and delay in completion of postgraduate studies have looked at the problem from different perspectives. Studies by (Ndayambaje, 2018; Chidi & Sylvia, 2020; Mbogo, Ndiao, Wambua, Ireri & Ngala, 2020) all investigated the problem of delayed completion and abandonment of Postgraduate studies from the supervision challenges encountered by such students in various universities. The study by (Adam & Abdel-Khalik, 2019) looked at the Challenges of Postgraduate studies and opined that student-related challenges are the highest challenges faced by postgraduate nursing students. Duze, 2010 revealed that postgraduate studies are plagued with numerous complex and deep-rooted problems ranging from systems/ procedural problems to socio-political problems and personal/psychological problems, and that these problems actually hindered studies and contributed to late graduation. But even with these studies, more postgraduate students are abandoning and overstaying on postgraduate programmes.

Research writing as an information related task should have a foreseeable beginning and an end. To complete any task, individuals must seek different types of information from different sources and channels (Bystrom, 2002). In order to reduce the number of postgraduate students that overstay and abandon postgraduate studies therefore, there is the need to explore their information seeking behaviour during research writing. Specifically, there is the need to explore the types of information they need and the sources of information they consult.

Objectives of the Study
This study has the following objectives:
1. To identify the types of information that Postgraduate students in Ahmadu Bello University need to complete research writing.
2. To identify the sources of information available to Postgraduate students in Ahmadu Bello University, Zaria.
3. To ascertain how the Information Activities in Work Task Theory explains the types of information needed and the sources available to postgraduate students of the Department of Library and Information Science during research writing.

Theoretical Framework: Information Activities in Work Task Theory
The theory of information activities in work tasks was developed by Bystrom (Bystrom, 2002). The theory posits that for tasks to be completed, different types of information should be sought from different channels and information sources. The theory focuses on task complexity. Task complexity affects the performance and the information needed to complete a task (Vakkari, 1999). Task complexity is associated with the degree of uncertainty of task performance and the degree to which the information needed to complete the task can be determined before the task is started (Soufan, Ruthven & Azzopardi, 2021). An increase in the task complexity implies that people will need more

types of information, will be less likely to predict the types of information they need, and will be more dependent on experts to provide useful information (Byström & Järvelin, 1995; Byström & Hansen, 2005).

Literature Review

The notion of task is fundamental in studies of human Information behaviour. Tasks and their complexity have been recognized in early information seeking models (Belkin, 1980) as an influential factor in information seeking behavior. Understanding information tasks and their characteristics is widely believed to be crucial for improving the effectiveness of Information Retrieval systems (Ingwersen, 1992). Several types of tasks have been investigated in information science.

Saastamoinen, Kumpulainen, Vakkari, and Järvelin (2013) examined information types in the context of simple, semi-complex and complex tasks in city administration. The target population of the study was employees of a city administration. The study employed questionnaire and respondents filled this questionnaire when initiating and finishing their work tasks. Questions concerned task complexity, information use, task performer's role and *a priori* determinability of the task, for instance. The data comprised of fifty-nine tasks performed by six participants. The tasks were divided in categories based on their perceived complexity. Thereafter, information types expected at the beginning of the tasks and materialized at the end were statistically analyzed within and between complexity categories. The study found that task complexity affects information use significantly. The more complex the task, the less facts and the more information aggregates are used.

Bystrom (2002) examined task complexity and information-seeking activities in real-life work tasks. The study focused on perceived task complexity, which was determined according to the task performers' prior knowledge about the task ahead. Information-seeking activities considered were a need to acquire different types of information and the subsequent use of different types of sources. The research data were mainly collected by (1) self-recorded journals that were fulfilled out by municipal administrators in the course of performing their ordinary work duties (altogether 78 task diaries), and (2) subsequent interviews. The results indicated that there is a relatively strong relationship between types of information and types of sources. The effects of task complexity made experts more attractive as a source than other people and all types of documentary sources.

This review also aggregated studies of the information seeking behaviour of Postgraduate students. Along that line, Asogwa and Daniel (2021) investigated the information needs, and the information seeking behaviour of National Institute for Legislative and Democratic Studies (NILDS) postgraduate students, the sources consulted, barriers, as well as ways to improve their information seeking experiences. The study adopted a descriptive survey method. The target population was all the postgraduate students of NILDS and random sampling technique was used in selecting the respondents. The study adopted the

use of questionnaires and data was analyzed using frequency tables and percentage. The major findings of the study are: the postgraduate students' information needs are various but the highest information need is for academic purposes. The students use sources such as textbooks, journals, Internet, and rely heavily on human resources for information.

Mussa and Antonio (2020) investigated the information seeking behaviour of postgraduate students from Eduardo Mondlane University, Medicine Faculty, in order to extend the knowledge about the students' interaction with study-related information as well as their perception in relation to the electronic resources available through UEM library, and the challenges they encounter seeking and retrieving information. A mixed method approach was adopted using a combination of semi-structured interview and online survey as data collection instruments. The results showed that students start their searches with quite clearly defined information needs and varied seeking purposes, with emphasis on solving tasks of their master's and PhD classes, as well as to write and publish scientific articles. Students are aware of the existence of electronic resources available through the university, with emphases on medical database HINARI. However, they prefer to use other sources freely available on the internet such as Google scholar and PubMed and they do not have the necessary skills to adopt precise strategies for information seeking. Issues such as unstable Internet connection, language barriers, difficulties in computing and use of databases, and limitations on access to documents that require payments are some of the main challenges faced by the students during information seeking.

Research Methodology

A qualitative single case study design was adopted for the study. A semi-structured interview was used for data collection. The data collected for this study was analysed using the qualitative content analysis. 25 Postgraduate students were sampled for the study; however, the saturation point was achieved after the tenth interview.

Results

The following are the findings of this study. They are presented in line with the objectives of the study.

Types of information needed by postgraduate students for Research Writing

This objective of the study identified the types of information needed by Postgraduate students of the department of Library science during research writing. Table 1 shows the categories and their respective subcategories.

Table 1: Types of Information needed by Postgraduate Students

Research Question	Categories	Sub-categories
RQ1: What types of information is needed by	5. Information related to my research topic.	1.1 Information related to my research topic

| postgraduate students of department of library and information science during research writing? | | 1.2 Information on how to complete my research under my supervisor |
| | 6. Information related to research in general | 2.1 Information on research in general |

Interview Data 2024

The types of information needed by postgraduate students for research writing includes: i) Information related to my research topic and ii) Information related to research in general.

Information related to research topic encompasses all the specific information directly pertinent to the student's research question or hypothesis. Information related to a student's research topic should include original research articles presenting new data and findings relevant to the topic (Creswell, 2017). It should also encompass detailed examinations of specific instances pertinent to the research topic (Yin, 2017). Comprehensive summaries of existing research related to the topic are necessary as well (Booth, Sutton, & Papaioannou, 2016), along with sources discussing theories relevant to the research topic (Silverman, 2015). Additionally, publications highlighting emerging trends and future directions in the field, including research designs and approaches, are essential (Bawden & Robinson, 2012).

Similarly, Information related to research in general includes broader information that supports the overall process of conducting and presenting research. This encompasses understanding research methodology, which is fundamental to conducting robust research (Creswell, 2014). It also includes information on methods for gathering data, such as surveys, interviews, and observations (Patton, 2015), as well as resources on statistical and qualitative analysis methods (Pallant, 2020). Effective academic writing skills are crucial for clearly presenting research findings (Murray, 2011), and information on using citation management tools is essential (Pears & Shields, 2019). Additionally, guidelines on academic integrity and avoiding plagiarism are important (Resnik, 2020). Foundational knowledge provides a broad understanding of the field and context for the research (Rubin & Rubin, 2020), and information about postgraduate research guidelines is also necessary.

However, in this study setting, participants were not fully aware of all these components of their research topic and problems, as they reported not knowing what to do after selecting their topic. This could be the reason why they overstay on the postgraduate programme of the department. Postgraduate students require a mix of specific and general information for effective research writing. Specific information related to their research topic helps build depth and credibility, while general information on research methodology,

academic writing, and foundational knowledge provides the necessary tools and context for conducting robust and ethical research.

Sources of information that are available to postgraduate students of department of library and information science during research writing

This objective of the study identified sources of information that are available to Postgraduate students of the Department of Library and Information Science during research writing. Three categories were used to label these sources. Table 2 shows these categories and their respective subcategories.

Table 2: Sources of Information for Postgraduate Students

Research Question	Categories	Sub-categories
RQ2: What are the sources of information that are available to postgraduate students of department of library and information science during research writing?	1. Electronic Information Resources.	1.1 The Internet 1.2 Databases 1.3 Institutional Repository
	2. Physical Library Resources.	2.1 The library 2.2 Journals 2.3 Newspaper
	3. Human Sources	3.1 Supervisor 3.2 Personal Communication with people 3.3 Other Lecturers in the department

Interview Data 2024

This study found three sources of information that are available to postgraduate students of the department of library and information science during research writing to include i) Electronic Information Resources ii) Physical Library Resources and iii) Human Sources. Each type of resource plays a critical role in supporting students throughout the research process.

Electronic information resources are crucial for modern academic research due to their accessibility, variety, and comprehensive coverage. Participants in this study setting recounted that they get information they need for research writing from the Internet, online databases and institutional repository. Academic databases provide access to a vast array of peer-reviewed articles, conference papers, and e-books. They allow students to access the

latest research and a broad range of materials pertinent to their topics. Institutional repositories offer access to theses, dissertations, and other research outputs from previous students and faculty. These repositories provide valuable resources for understanding prior work and building on existing research.

Despite the rise of digital resources, physical library resources remain critical for academic research, providing materials that might not be available online. In this study setting, participants stated that they get information from the library, journals, and newspapers. Library books and monographs offer in-depth coverage of subjects and foundational knowledge. These resources are often used for comprehensive understanding and in-depth study of a topic. Print journals and periodicals provide access to scholarly articles and ongoing research in various fields. These are essential for historical research and accessing older publications that may not be digitized.

Human sources provide personalized guidance and expertise, which are crucial for successful research. In this study setting, participants also averred that they get information from human sources to include Supervisor, Personal Communication with people and other Lecturers in the department. Supervisors offer mentorship, suggest relevant literature, and provide critical feedback. Their expertise and guidance are invaluable for refining research questions and methodologies. Collaboration with peers and colleagues provides new perspectives and shared resources. Peer support can offer moral and intellectual encouragement and facilitate collaborative learning. The mentorship and expertise provided by other lecturers are indispensable for academic growth and successful research outcomes.

Studies in information science literature (Xie & Joo, 2009; Anunobi & Emezie, 2020; Erlianti, Zuve & Nabila, 2022; Ankamah, Gyesi & Amponsah, 2024) have shown the shift in the use of information sources which initially tended to use printed sources then developed into electronic-based sources that can be accessed anytime and anywhere by information users. On the other handy, Cabfilan (2024) opined that despite the proliferation of online information sources, students still preferred to use print when writing their researches or assignments. Harris and Dewdney (1994), posited that People tend to first seek information from interpersonal sources, especially from people like themselves. This shows the need for the use of different information sources to complete information related tasks like research writing.

Table 3: Constructs of the Information Activities in Work Tasks and quotes that explains types of information needed and sources of information available

Constructs	Categories	Quotes
Types of Information	i) Information related to my research topic and ii) Information related to research in general.	*"… Basically, what is related to my field of studies? That's what I use. Information is related to my topic"* (Participant 5)

		"The type of information I needed during my research work are information about research in general and I consulted mainly e-books on research methodology." (Participant 7)
Sources of Information Used	i) Electronic Information Resources ii) Physical Library Resources and iii) Human Sources.	*"… By sources, you mean the sources of information that I have been using for the research, right? Yes. Okay. The sources are usually from the internet, mostly…"* (Participant 2) *"My sources of information for my research are books from the library…"* (Participant 7) *"…Then I got some hard copies from the library and my supervisor too, she was of help to me. She gave me some resources from her work…"* (Participant 1)

Interview Data 2024

The Information Activities in Work Task theory has two constructs: Types of Information needed to complete a task and Sources of Information used to complete a task.

1. Types of Information needed to complete a task: Byström (1999) categorised information into three categories based on its nature or ways of use: task information, domain information and task-solving information.

Task information encompasses information dealing with exclusively the task at hand.

Domain information deals with general information dealing with the task subject.

Task-solving information indicates the means and methods to perform the task, e.g., information about what task and domain information is needed and at what stages of the task.

In this study setting however, participants identified they needed two types of information to complete research writing information on their research topics/problem and information of research generally. These corresponds to task information and domain

information respectively. The task solving information is missing. More so, even the information on research generally that they averred to needing did not incorporate all the constituents of information regarding research methodology. This could possibly account for the reason why postgraduate students overstay on the programme and find it hard to complete the research writing task.

2. Sources of information to be used to complete the task: Bystrom (1999) refer to information sources as that which guides the task performer to sources that contain needed information. The theory also posits that the more complex the task, the more information types are sought from multiple sources of information. In this study setting, participants stated they use multiple sources of information for research writing to include electronic, physical and human sources. This aligns with the tenets of the theory.

The two constructs of the Information activities in Work Task theory explained the types of information needed and the sources of information available to postgraduate students of the department of library and information science during research writing.

Conclusion

Postgraduate students in the Department of Library and Information Science face a multifaceted research process that requires diverse information types, access to various sources and channels, and the need to overcome significant challenges. They overstay on the postgraduate programme as a consequence of their limited research and information literacy skills. This study concludes that the information seeking behaviour of postgraduate students during research writing is still devoid of the necessary skills for the completion of the task in the stipulated time.

Recommendations

The following recommendations are proffered based on the findings of this work:

- The Department should organize regular workshops and seminars focusing on research methodologies, data analysis techniques, and academic writing. Also, the department should establish mentorship programs where experienced researchers guide students through the research process and information literacy.
- The Department should also provide institutional access to essential research materials, software, and databases that Ahmadu Bello University, Zaria Library Complex subscribes to.

References

Adam, S. M., Abdel-Azeem, H., & Abdel-Khalik, A. (2019). Challenges of postgraduate studies: Assessments by master and doctoral nursing students. *International Journal of Novel Research in Healthcare and Nursing*, *6*(3), 710-719.

Ankamah, S., Gyesi, K., & Amponsah, V. (2024). Use of electronic resources in research and learning in a health sciences library in Ghana: An analysis of awareness and perception of users. *Information Development*, *40*(2), 202-219.

Anunobi, C. V., & Emezie, N. A. (2020). Information sources preference of post graduate students in Federal University of Technology Owerri, Nigeria. *Library Philosophy and Practice. https://digitalcommons.unl.edu/libphilprac/4060*

Asogwa, C. & Daniel, T. M (2021) Information Needs and Information Seeking Behaviour of the Postgraduate Students at the National Institute for Legislative and Democratic Studies, Abuja. *Information Impact: Journal of Information and Knowledge Management*, 12(2), 62-72.

Bawden, D., & Robinson, L. (2012). Introduction to Information Science. Facet   Publishing.

Belkin, N. J. (1980). Anomalous states of knowledge as a basis for information retrieval. *Canadian journal of information science*, *5*(1), 133-143.

Booth, A., Sutton, A., & Papaioannou, D. (2016). Systematic Approaches to a Successful Literature Review (2nd ed.). SAGE Publications.

Byström, K. (1999). Task complexity, information types and information sources. Tampere,   Finland: University of Tampere. (Acta Universitatis Tamperensis 688).

Byström, K. (2002). Information and information sources in tasks of varying complexity. *Journal of the American Society for information Science and Technology*, *53*(7), 581-591.

Cabfilan, N. W. (2024). Information Sources Preferred by Students in Academic Writing. *DESIDOC Journal of Library & Information Technology*, *44*(1).

Chidi, N., & Sylvia, O. A. (2020). Determination of Factors that Contribute to Postgraduate Students' Delay in their Thesis/Dissertation Completion. *The Universal Academic Research Journal*, *2*(2), 78-86.

Creswell, J. W. (2014). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th ed.). SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2017). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE Publications.

Duze, C. O. (2010). An analysis of problems encountered by post-graduate students in Nigerian Universities. *Journal of Social Sciences*, *22*(2), 129-137.

Harris, R. M & Dewdney, P. (1994) Barriers to information: how formal help systems fail Battered Women. Westport, CT: Greenwood Press. doi: 10. 2307/40322988

Mbogo, R. W., Ndiao, E., Wambua, J. M., Ireri, N. W., & Ngala, F. W. (2020). Supervision challenges and delays in completion of PhD programmes in public and private universities: Experiences of supervisors and graduate students in selected universities in Nairobi,Kenya. *European Journal of Education Studies*. 6 (11), 261-278.

Mussa, I. C., & Antonio, R. J. (2020). Information seeking behaviour of postgraduate students from Eduardo Mondlane University, Medicine Faculty (Dissertation). Retrieved from https://urn.kb.se/resolve?urn=urn:nbn:se:hb:diva-24425

Ingwersen, P. (1992). *Information retrieval interaction* (Vol. 246). London: Taylor Graham.

Mkhai, E. (2023). Factors contributing to slow completion rate among postgraduate students of the Information Studies Programme at the University of Dar es Salaam, Tanzania. *IFLA Journal*, 03400352231174468.

Ndayambaje, I. (2018). Effect of supervision on timely completion of PhD Programme. *Rwandan Journal of Education*, *4*(2), 57-70.

Pallant, J. (2020). SPSS Survival Manual: A Step-by-Step Guide to Data Analysis Using IBM SPSS (7th ed.). Routledge.

Paré, A. (2019). Re-writing the doctorate: New contexts, identities, and genres. *Journal of Second Language Writing*, *43*, 80–84.

Patton, M. Q. (2015). Qualitative Research & Evaluation Methods: Integrating Theory and Practice (4th ed.). SAGE Publications.

Pears, R., & Shields, G. (2019). Cite Them Right: The Essential Referencing Guide (11th ed.). Macmillan Education UK.

Resnik, D. B. (2020). The Ethics of Research with Human Subjects: Protecting People, Advancing Science, Promoting Trust. Springer.

Rubin, R. E., & Rubin, R. N. (2020). Foundations of Library and Information Science (4th ed.). ALA Neal-Schuman.

Saastamoinen, M., Kumpulainen, S., Vakkari, P. & Järvelin, K. (2013). Task complexity affects information use: a questionnaire study in city administration. Information Research, 18(4) paper 592. [Available at http://InformationR.net/ir/18-4/paper592.html]

Silverman, D. (2015). Interpreting Qualitative Data (5th ed.). SAGE Publications.

Soufan, A., Ruthven, I., & Azzopardi, L. (2021, July). Untangling the concept of task in information seeking and retrieval. In *Proceedings of the 2021 ACM SIGIR International Conference on Theory of Information Retrieval* (pp. 73-81).

Ssegawa, J., K. & Kalabamu, F. (2020). Attrition and Completion Rates of Research Based Graduate Degrees: The Case of MPM Programme, University of   Botswana. *Academia   Journal of Educational Research* 8(6), 218-229. 10.15413/ajer.2020.0402.

Thindwa, T., Chawinga, W.D. & Dube, G., (2019), 'Information seeking behaviour of security studies students: A case study', *South African Journal of Information Management* 21(1), a1048. https://doi.org/ 10.4102/sajim.v21i1.1048

Xie, I., & Joo, S. (2009). Selection of information sources: Accessibility of and familiarity with sources, and types of tasks. *Proceedings of the American Society for Information Science and Technology*, *46*(1), 1-18.

Yin, R. K. (2017). Case Study Research and Applications: Design and Methods (6th ed.). SAGE