Security Measures in Meeting Information Needs and Seeking Behaviour of Agricultural Science Students in Nigerian Universities

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Abstract

Security measures play a significant role in the accessibility and use of agricultural information resources among undergraduate science students in Nigeria. This results in overcoming obstacles to valuable information required by agricultural students to cultivate their products that would replicate food substances in the Nigerian economy. Nonetheless, unauthorised individuals have pervaded access to information that is meant for agricultural science students due to a lack of security of such information. There are unlimited assets and products to which agricultural students have access; hence, this paper investigates security measures in meeting information needs and seeking behaviour of agricultural science students in Nigerian universities. The paper employed a qualitative research method based on the explanatory research method. In so doing, the use of a systematic literature review was adopted to examine the information needs and seeking behaviour of agricultural students in Nigeria and again to find out the security measures put in place to ensure valuable information and preventive approaches to unauthorised individuals are sustained. Using a purposive sampling technique, the authors collected articles published between 2015 and 2023 on databases of Emerald and ResearchGate for the review. Findings reveal that agricultural science students in Nigerian universities have a diverse range of preferred information sources. Findings further reveal that students engage in information-seeking behaviour for various purposes, such as course assignments, practical experiments, exam preparation, general reading, discussions, seminars, workshops, conferences, and research projects. Challenges in information-seeking behaviour include inadequate access to current information materials and uncooperative attitudes of librarians and lecturers. The study concludes that security measures are crucial in shaping



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how students access information. The study recommends that universities ensure a balance between print and electronic resources to cater to students' varied preferences to accommodate comprehensive support for their research and studies in the university environment. This would enhance sustainable security measures and accessibility to varied information resources for the students.

Keywords: security; agriculture; information needs; information sources; seeking behaviour; students

Introduction

Security measures have become a key factor in the present-day economy and discipline, irrespective of the context. Security measures play a significant role in the accessibility and use of agricultural information resources for agricultural science students. This results in overcoming obstacles to valuable information required by agricultural students to cultivate their products that would replicate food substances in the Nigerian economy. There are unlimited assets and products to which agricultural students have access. Nonetheless, unauthorised individuals have pervaded access to information that is meant for agricultural science students due to a lack of security of such information. These measures ensure that students can access relevant and reliable information while safeguarding their privacy and data. Shaibu and Mike (2014) opine that for the information needs of students to be met, there must be elements of security mechanisms that guarantee easy access and usage of resources. Information is a communication mechanism that can be given different interpretations based on societal perspectives. According to Oladokun et al. (2022), information enables one to be informed to make accurate decisions. The information provides answers or clues to a question that usually brings a reduction in the level of uncertainty among human beings. People need information for different reasons and purposes and they seek information from various sources. Ejechi (2020) avers that information needs could be referred to as the extent to which information is required to solve problems, as well as the degree of expressed satisfaction or dissatisfaction with the information. Therefore, information needs arise from the fact that an individual needs information whether to satisfy immediate needs or future needs.

The need to acquire information is what helps one to survive. Everybody needs information for survival, including undergraduate students. On the other hand, information-seeking behaviour is a way people search for and utilise information. Oladokun, Yemi-Peters, and Owolabi (2021) state that information-seeking behaviour is the purposive search for information because of a need to satisfy some goals. It is, however, believed that information serves as an important resource needed by agricultural students primarily for solving agro-economic problems and to pursue their academic and research endeavours. In so doing, the important role of agricultural students, who thereafter become officers, has massively helped to increase food supply and sustainable environment development in Nigeria. Hence, it becomes paramount for

research to be done to examine how agricultural students seek information and the information they need before they are sent to the field. Several studies (Makinde, Iyane, and Mugus 2019; Tsabedze and Adeyinka 2021; Yahaya 2021) have been conducted on the information-seeking behaviour of final-year university students, including law students, engineering students, communications students, and medical students. However, there is a paucity of literature on security measures for information-seeking behaviour and the needs of agricultural students in Nigeria. Based on the researchers' knowledge, it appears that this study is the first of its kind to examine information needs and information-seeking behaviour of agricultural students in Nigeria using a systematic review of the literature.

In Nigeria, it has been reported that undergraduate students in many faculties of agriculture and agricultural research institutes are trailing others in terms of productivity and intellect (Yahaya 2021). This has resulted in poor information access that will influence their behavioural patterns for sustainable agricultural development (Yahaya 2021). Interestingly, agricultural students can attain growth and development in their agricultural practices and activities when they have access to relevant information. Based on this, the study examines the security measures of information needs and information-seeking behaviour of agricultural students in Nigeria, since students need information for their day-to-day activities.

Agricultural science is a field of study that covers areas such as animal production, crop production, forestry, and food science. It also deals with the technologies of soil cultivation, crop cultivation, harvesting, and crop and animal production for human consumption and use. Oladokun et al. (2022) indicate that agricultural science encompasses the cultivation of desirable plants and the breeding and raising of livestock for commercial purposes. Following the lucrativeness embedded in agricultural science, several students have shown interest in and enthusiasm for studying agriculture in higher institutions. In view of this, many Nigerian institutions offer agriculture science to meet the agricultural needs of undergraduate students. The departments in the faculty, according to the review, include Crop Production, Animal Production, Forestry, Economic and Agricultural Extension, and Food Science. As in most faculties, there is a special library with relevant and recent collections including journals, newspapers, books, references, and electronic resources for admitted agricultural science students. While seeking information, agricultural science students interact with print and electronic information systems. These resources include books and journals, newspapers, handbooks, computer-based systems, databases, and virtual libraries, including EBook Central (Academic Complete) Virtual Library, Emerald, AGORA (Access to Global Online Research in Agriculture), web-based and stand-alone resources, and the internet to meet their academic and other needs. As a result, this study sought to identify the information needs and seeking behaviour of agricultural students in Nigerian universities to train students and produce graduates in the field of agriculture.

Objectives of the Study

In this study, the following research objectives were applied:

- 1. To determine the information needs of agricultural students in Nigerian universities.
- 2. To determine the sources by which agricultural students sought information in Nigerian universities.
- 3. To determine the information-seeking behaviour of agricultural science students in Nigerian universities.
- 4. To identify the challenges encountered by agricultural science students when seeking information.
- 5. To determine security measures associated with information needs and seeking behaviour of agricultural science students.

Literature Review

In this study, the literature review was guided by the various research objectives, which are developed in different sections of the paper.

Information Needs of Agricultural Students in Nigerian Universities

Mohanan and Vijesh (2020) reveal that students rely on library books, textbooks, and journals. Essein et al. (2021) conducted a similar study and found that undergraduates looked for the fastest way that would lead to satisfactory results when doing research by going for electronic information sources first. Wiche and Ray-Ogbonna (2021) posit that students need information primarily for the purpose of practicals or experiments, assignments, seminar presentations, class discussions, preparation for tests and examinations, updates, and global developments in the study area. Supporting the foregoing, Abdullahi et al. (2015) reveal that students need information from their libraries extensively as they use it for the preparation of notes, preparation of project and seminar reports, general knowledge, and updating knowledge. Towolawi et al. (2019) reveal that writing assignments and studying for tests or examinations are the primary tasks for which students require information and the major sources used to obtain information were books, videos, lecture notes, handouts, the internet, projects, CD-ROM database, and journals.

Sources of Information Used by Agricultural Students in Nigerian Universities

Information sources used by agricultural science students could be either print or non-print. As reviewed in several studies, Essien, Lu, and Su (2021) reveal that undergraduate students source information from reference books, online public access catalogues, and library staff. Also, Manjunath and Babu (2018) indicate the helpful behaviour of staff in locating and checking out materials. The study also made it known that undergraduate students use email and discussions with teachers (lecturers) as the most preferred informal sources of seeking information. Thus, they feel that friends and

teachers direct them to various sources of information that may be useful. Teachers even provide them with journal articles and books. On the user preference for information sources format, the study shows that users prefer information in both print and electronic form; however, students desire more exposure to electronic sources, and they also expressed a need for training in the use of these resources. The study by Patel and Chaudhari (2017) emphasises the preferred formats of students of Arts and Humanities teachers at the University of Punjab revealed that (77%) of the students preferred print resources, followed by electronic resources (39%), while audiovisual materials were the least preferred (13%).

According to Wiche and Ray-Ogbonna (2021), the sources of information consulted by undergraduate students in library and information science include course lecturers, library associations, friends and classmates, periodicals, the internet, books, and librarians. They also report that the most used sources of information by students are Google, Wikipedia, news websites, friends and family members, class notes, lecturers, and selected subscription databases. Few agricultural science students made use of physical libraries, librarians, information professionals, experts, books, magazines, etc. Agricultural science students need information that is pertinent to their desired goal, such as information about laboratories, farm produce, feeds, weed control mechanisms, irrigation plans, fertilisers, seedlings, and pest control. They may consult a variety of sources when seeking their information needs, such as the internet, lecturers, school notice boards, hospitals, textbooks, electronic resources, agricultural dictionaries, libraries, friends, and colleagues.

Information-Seeking Behaviour of Agricultural Science Students in Nigerian Universities

Information-seeking behaviour refers to human behaviour with respect to searching various sources and channels to source information (Chinnasamy 2016). In the context of this study, therefore, information-seeking behaviour connotes steps taken during the information and knowledge-seeking, gaining, and searching process. It is also the observed changes and activities engaged in as exhibited by agricultural students during the information and knowledge-seeking, searching, and receiving process. A study by Oyadeyi (2017) reveals that the main information demands that led agricultural science students to seek information include courses and assignments, agricultural practicals or experimentation, preparation for examinations and tests, general reading to enhance lecture notes, class-group discussions, seminars, preparation for workshops, tutorial presentations, and research projects. The findings further show that lecture notes and handouts were the most preferred and used, followed by handbooks and then libraries. Consulting and photocopying from colleagues took the fourth position, followed by using internet sources, while the university bookshop took the last position. Wiche and Ray-Ogbonna (2022) observed that often students' information-seeking behaviour involves active or purposeful information retrieval because of the need to complete course assignments, prepare for class discussions seminars, workshops, conferences, or write final-year research papers. In another study, Diso and Njoku (2017) reveal that the internet is the most consulted source, followed by students' class notes and handouts.

Sellan and Sornam (2018) observe that agricultural science students seek information mainly for the purpose of updating their knowledge, carrying out experiments or practicals, preparing for examinations, and doing assignments. Although one would have expected that students consult librarians/library staff when seeking information, it was, however, observed that students prefer discussing with colleagues or persons they consider more knowledgeable. This, however, may be attributed to the fact that discussing with colleagues or persons considered knowledgeable may give them a better understanding of the topics they are working on before they embark on a literature search or that students do not see the librarians/library staff as knowledgeable enough to assist them. Paran, Barman, and Devi (2021) carried out a study on the information behaviour of engineering students in Lucknow, India. The outcome of the study shows that students first give priority to seeking information through discussion with colleagues, the second priority is discussion with seniors, and consultation with teachers is the third priority.

Students seek information for various purposes. Saka, Garba, and Zarmai (2018) mention that studying the way students find information is essential to understanding them as a user group, helping them find research more effectively and efficiently, and developing resources for their use. They also report that the most used sources of information by students are Google, Wikipedia, news websites, friends and family members, class notes, lecturers, and selected subscription databases (Wiche and Ray-Ogonna 2021). From the review, it was found that few students made use of physical libraries, librarians, and information professionals. Furthermore, it is believed that agricultural science students consult a variety of sources when seeking their information needs such as the internet, lecturers, school notice boards, hospitals, textbooks, electronic resources, medical dictionaries, libraries, friends, and colleagues. Martinez-Arellano (2018) highlights ways in which students seek information, which includes consulting colleagues, the library, friends, family members, the internet, etc. The researchers deduced that agricultural science students were curious and anxious in their search for information. However, some of the students portraved laziness and a lackadaisical attitude while seeking information.

Challenges Encountered by Agricultural Science Students When Seeking Information

As observed in the literature review, there are several challenges associated with information-seeking behaviour of agricultural science students in Nigerian universities. Studies conducted by Oyadeyi (2017) and Makinde, Iyane, and Mugus (2019) posit that the challenges affecting the seeking behaviour of agricultural students primarily include a lack of current information materials and the attitude of librarians and lecturers. Wiche and Ray-Ogonna (2021), in a study on information-seeking behaviour among medical science students, show that irrelevant information on the internet, lack of internet search

skills, inadequate sources of information, and inadequate information on databases affect students. Further findings show that students do not perceive the unconducive environment as a challenge because the library is a serene environment. Based on certain challenges faced by undergraduate agricultural science students regarding their information-seeking behaviours, Ogba (2015) reveals that inadequate information sources, poor retrieval skills, and indifferent attitudes of lecturers were challenges associated with the information-seeking behaviour of students. Perley et al. (2017) reveal that students faced challenges in seeking information such as limited access to library resources and sources, inability to access library resources due to poor networks, and inadequate relevant information resources. Makinde, Iyane, and Mugus (2019) have established that the lack of current books is one of the problems confronting users in seeking information. Also, El-Maamiry (2017) observes that inadequate electricity, poor retrieval skills, lack of awareness, inadequate facilities/surroundings, and inadequate funding are the main barriers affecting the seeking behaviour of agricultural science students. Supporting this, Sellan and Sornam (2018) find that the major problems in seeking information include material unavailability and obsolescent information resources

Security Measures Associated with Information-Seeking Behaviour of Agricultural Students

Security measures can significantly impact agricultural students' access to information, shaping their behaviour when seeking information for their studies. According to Shaibu and Mike (2014), the information-seeking behaviour of students is affected by how information resources are accessed online or offline. Going further, the authors add that the following security measures are associated with the seeking behaviour of students in accessing information:

- 1. Security measures like content filters or firewalls can limit students' access to certain websites, databases, or online resources. This can hinder their ability to explore a wide range of information relevant to their studies.
- 2. Some educational websites or resources might inadvertently get blocked due to overly aggressive security settings, preventing students from accessing valuable materials.
- 3. Stringent security measures might lead to privacy concerns, where students fear their online activities are being monitored. This could influence them to avoid certain platforms or websites.
- 4. Physical security measures might limit students' access to library resources. Restricted opening hours or limited access to specialised sections could hinder their ability to utilise print materials.
- 5. If libraries implement stringent security measures for borrowing materials, it might discourage students from utilising these resources as the process becomes more cumbersome.

Given the foregoing, security measures such as authentication and authorisation protocols ensure that only authorised users can access specific resources. Furthermore,

El-Maamiry (2017) indicates that agricultural students work with sensitive information, such as experimental results or proprietary data, and security measures ensure that this information is kept confidential. While it is believed that agricultural students often require access to online databases for research purposes, security measures on these platforms prevent unauthorised access and data breaches, ensuring the integrity and authenticity of the information they retrieve. According to Oladokun, Yemi-Peters, and Owolabi (2021), security measures protect agricultural students from cyber threats, such as malware and phishing attacks. These measures maintain the safety of their devices and data, enabling them to engage with online resources without fear of compromising their devices. Sellan and Sornam (2018) state that security measures enable them to share and collaborate on documents, data, and findings securely, preventing unauthorised access and data leakage. The authors further state that security measures facilitate secure remote access to digital resources. This is especially important for agricultural students who might need to access information while off-campus or during fieldwork. By implication, security measures provide the foundation for meeting the information needs of agricultural students by ensuring access to resources, data privacy, cybersecurity, collaboration, and overall confidence in the digital landscape.

Methodology

The paper employed a qualitative research approach based on the explanatory research method. During the research investigation, the researchers made use of a systematic literature review to examine the information needs and seeking behaviour of agricultural students in Nigeria. To this end, the researchers gathered research articles published on information needs and sought behaviour of students from the databases of Emerald and ResearchGate over an interval of eight years (2015 to 2023). The researchers purposely adopted these databases for the search strategy and the eight years' research interval was used to source relevant data and articles published in the areas of information needs and seeking behaviour of agricultural students. While the research was ongoing, relevant literature key terms of "information needs" and "seeking behaviour of agricultural students" were considered. The search strategy took the researchers one week to gather the relevant articles used for the research papers. After collating the articles published in the databases, the researchers were able to internalise the content therein in the paper that relates to information needs and the seeking behaviour of agricultural students. The entire research project took the researchers two months to accomplish. The researchers adhered to ethical standards where the authors cited for the paper were referenced and ensured consistency in the research paper.

Discussion

The study shed light on various aspects of information-seeking behaviour, preferred sources of information, challenges faced, and the role of security measures. The study indicates that agricultural students in Nigerian universities have a diverse range of

preferred information sources. These sources include library books, textbooks, journals, electronic information sources (such as the internet and electronic databases), lectures, discussions with teachers, and discussions with colleagues. This finding validates the study of Oladokun et al. (2022). Students appear to value a mix of both print and electronic resources. Students engage in information-seeking behaviour for various purposes, such as for course assignments, practical experiments, exam preparation, general reading, discussions, seminars, workshops, conferences, and research projects. This validates the findings of Wiche and Ray-Ogonna (2021). This implies that agricultural science students often seek information from both formal sources (lecturers, libraries) and informal sources (colleagues, friends, family members, discussions with peers). Challenges in information-seeking behaviour include inadequate access to current information materials, uncooperative attitudes of librarians and lecturers, lack of internet search skills, inadequate sources of information, and inadequate training in using resources. This study validates the findings of Makinde, Iyane, and Mugus (2019). The study also indicates that some agricultural science students also display reluctance, laziness, or lackadaisical attitudes when seeking information.

Security measures are crucial in shaping how students access information. Physical security measures might restrict library access, while online security measures can both protect students' devices and data and restrict their access to certain online resources. This supports the findings of Shaibu and Mike (2014), which indicate that security measures can also influence privacy concerns and influence students' choices of platforms and resources. Security measures play a vital role in safeguarding agricultural students' interactions online, protecting them from cyber threats like malware and phishing attacks. Moreover, security measures enable secure collaboration on documents and data, ensuring confidentiality, and preventing unauthorised access. The study underscores the importance of creating an information-rich environment that addresses the diverse information needs of agricultural students while ensuring their security and privacy. Balancing security measures with accessibility and promoting information literacy will empower agricultural students to succeed in their academic pursuits.

Conclusion and Recommendations

Security measures are paramount in facilitating the accessibility and utilisation of agricultural information resources among undergraduate science students in Nigeria. Security measures are put in place as instruments in removing obstacles that hinder agricultural students from accessing vital information necessary for cultivating products that contribute to the food supply in the Nigerian economy. Significantly, the authors of this paper conclude that a number of unauthorised individuals have exploited the lack of security measures to gain access to the information originally intended for agricultural science students that other studies related to this present study did not capture. Therefore, the findings of this study underscore the paramount importance of creating an environment that seamlessly integrates students' diverse information needs

while preserving their security and privacy. Striking a harmonious balance between security measures and accessibility, coupled with the promotion of information literacy, empowers agricultural students to confidently navigate the academic landscape. This holistic approach, underpinned by a blend of resources and robust security, will undoubtedly propel students towards academic success. In so doing, the following recommendations are put forward:

- 1. Universities should ensure a balance between print and electronic resources to cater to students' varied preferences and provide comprehensive support for their research and studies.
- 2. Universities and libraries should provide support and guidance in navigating both formal and informal sources of information. Encouraging interaction among students and with knowledgeable peers can enhance the information-seeking process.
- 3. Educational institutions should address challenges by providing training programmes, improving access to current materials, fostering positive attitudes among staff, and enhancing students' information literacy skills.
- 4. Universities need to strike a balance between security measures and accessibility. While security is essential, overly restrictive measures might hinder students' abilities to access necessary information. Implementing robust cybersecurity practices is crucial to protecting students' data and privacy.

Universities should provide training on cybersecurity best practices to help students navigate the digital landscape safely. Additionally, promoting secure collaboration tools and practices can enhance students' ability to work together effectively while maintaining data security.

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