

DIGITAL INFORMATION LITERACY AND UTILIZATION OF ELECTRONIC RESOURCES AMONG LIBRARY USERS AT LAIKIPIA UNIVERSITY, KENYA

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Abstract

Electronic resources have become essential to postgraduate teaching, learning and research, but their academic value depends on users' ability to identify, search, evaluate and apply digital information effectively. This article examined digital information literacy and utilization of electronic resources among library users at Laikipia University, Kenya. The study adopted a mixed-methods case study design. Questionnaires were administered to 142 postgraduate students, of whom 140 responded, while interviews were conducted with all three senior librarians, producing an overall response rate of 98.6%. Quantitative data was analyzed using frequencies and percentages, and qualitative interview data was analyzed thematically. The findings showed that digital information literacy was moderate. More than half of the students (53.7%) had not received formal library training on electronic resources. Although 51.5% were confident or very confident in searching for scholarly materials, only 40.7% were confident or very confident in evaluating the relevance and credibility of retrieved information; 44.3% were slightly confident or not confident at all. Nevertheless, electronic resources were central to postgraduate work: 57.1% reported that they supported dissertations, theses, coursework and academic writing to a great or very great extent, while 66.4% used them often or very often for research and academic writing. Librarians confirmed that training, awareness, lecturer recommendations and search competence strongly shaped utilization. Major constraints included poor internet connectivity, authentication problems, limited awareness, complex platforms and inadequate digital literacy skills. It is concluded that access alone does not ensure effective use. There is need for Laikipia University to institutionalize continuous, research-oriented digital information literacy training, strengthen remote access and internet infrastructure, simplify platforms and expand proactive user support.

Keywords: Digital Information Literacy, Electronic Resources, Postgraduate Students, Academic Libraries, Laikipia University.

Introduction

Academic libraries have undergone a major transition from predominantly print-based collections to hybrid and digital information environments. This change has expanded access to scholarly journals, databases, electronic books, institutional repositories and open access materials, enabling university students and researchers to obtain current information beyond the physical library ^[1]. In African universities, however, availability of electronic resources has not always translated into their full academic use because infrastructure, user competence, awareness, funding

and access systems remain uneven ^[2]. Kenyan universities have similarly invested in electronic collections in response to national standards that require university libraries to provide adequate, current and accessible information resources for teaching, learning and research ^[3].

Digital information literacy is therefore central to the value of electronic resource investments. It refers to the ability to recognize an information need, identify suitable electronic sources, design and execute effective searches, evaluate relevance and credibility of retrieved information, manage information ethically and use it appropriately in academic work ^[4]. The concept extends beyond basic computer operation. Thus, a student may know how to open a browser or access a database but still lack the competence to select appropriate keywords, use Boolean operators, distinguish peer-reviewed evidence from unreliable content, evaluate authorship and publication quality, or cite digital sources correctly. Academic libraries play a critical educational role by providing orientations, workshops, research consultations and embedded instruction that develop these abilities ^[5].

Previous research has consistently linked information literacy with use of electronic resources. Students who can clearly define their information needs, formulate search strategies and evaluate sources are more likely to retrieve relevant scholarly material and integrate it into assignments and research ^[6]. Conversely, limited search and evaluation skills may lead to information overload. Studies conducted in Kenya have demonstrated that postgraduate students continue to experience challenges in information retrieval, source evaluation and citation despite institutional investments in digital resources and user education ^[7,8]. Low awareness and infrequent training have also been identified as reasons why some postgraduate users rarely use subscribed resources ^[9].

Laikipia University Library provides access to a range of electronic resources through institutional subscriptions, consortium arrangements, her institutional repository and open access sources. The university is located in a predominantly rural setting, making it an important context for understanding how digital competence interacts with infrastructure, remote access and institutional support. This article draws from a wider study on collection development and e-resource utilization and focuses specifically on the level of digital information literacy among postgraduate library users and how that level shapes effective utilization of electronic resources.

University libraries incur substantial costs acquiring, licensing and maintaining electronic information resources yet these investments yield academic value only when intended users are aware of the resources and possess the skills required to access, search, evaluate and apply them. Notably however, electronic resource utilization in Kenyan Universities is constrained by inadequate digital literacy, limited awareness, poor connectivity, complex platforms and authentication difficulties ^[8,10]. These challenges can result in a gap between resource availability and

actual use, weaken the return on institutional investment and limit students' access to authoritative scholarly evidence.

At Laikipia University, there was limited empirical evidence showing whether postgraduate students possessed the digital information literacy competencies required to use the university's electronic collections effectively. It was also unclear whether students who received library training considered it useful, how confident they were in searching and evaluating information, and the extent to which e-resources supported their research and academic writing. Addressing this gap was necessary for designing user education and support services that move beyond mere access toward meaningful, critical and sustained utilization. Effective utilization includes awareness of available resources, successful authentication, identification of relevant platforms, purposeful searching, retrieval of full text, critical evaluation and integration of evidence into academic outputs. Research in African universities shows that the use of e-resources is often reduced by unstable internet, lack of training, limited awareness and insufficient technical support ^[10,12]. In Kenya, university libraries have expanded subscriptions and information services, but the practical value of these resources remains dependent on access conditions and user preparedness ^[13]. With the view to supporting research in Kenyan Universities, there is need for a deliberate study to determine the level of digital acquisition and literacy support offered to Kenyan researchers by University libraries.

Objective of the Study

The study sought to evaluate the level of digital information literacy among library users at Laikipia University and examine its influence on effective utilization of electronic resources.

Theoretical Perspective

The study was informed primarily by the SCONUL Seven Pillars of Information Literacy and the Technology Acceptance Model. The SCONUL framework conceptualizes information literacy as a continuing cycle of identifying an information need, scoping existing knowledge, planning a search, gathering information, evaluating it, managing it and presenting or applying it ^[14]. These pillars provided a basis for interpreting students' confidence in searching and evaluating scholarly information. The Technology Acceptance Model proposes that the adoption of a technology is shaped by perceived usefulness and perceived ease of use ^[15]. It was relevant because students' willingness to use electronic resources depends partly on whether the platforms support academic work and whether access and navigation are manageable. Together, the two perspectives connect user capability with perceptions of the digital systems through which information is delivered.

Methodology

The study adopted a mixed-methods case study design to provide both measurable patterns and deeper explanations of electronic resource use. The study was conducted at Laikipia University, a

Kenyan public university located approximately eleven kilometres from Nyahururu town. The institution was selected because its library provides subscribed databases, repository content and other electronic resources while serving users in a rural-based university context. Mixed methods were appropriate because questionnaire data could describe training, confidence and usage patterns, while interviews with librarians could explain how awareness, user support and institutional conditions influenced those patterns.

The target population comprised 220 postgraduate students and three senior librarians. The postgraduate sample was calculated using the Yamane formula at a five per cent margin of error, producing a target population of 142 students. Stratified random sampling was used for students, while the University Librarian, Systems Librarian and Reference Librarian were included because of their direct roles in electronic resource management and user support. A total of 140 student questionnaires were returned, and all three librarians participated in interviews.

Data was collected using a structured questionnaire and a semi-structured interview guide. The questionnaire measured training, perceived usefulness of training, confidence in searching, confidence in evaluating information, academic contribution of e-resources, frequency of use and barriers to utilization. The interview guide explored awareness, information literacy support, resource use and the role of lecturers and library staff. The instruments were piloted at Kirinyaga University to assess clarity, validity and reliability. Participation was voluntary, confidentiality and anonymity were protected, and the study followed institutional and national research authorization requirements.

Quantitative data was analyzed in IBM SPSS Version 28 using frequencies and percentages. Interview data was coded and analyzed thematically. Findings from the two data streams were integrated during interpretation. Since the source study reported descriptive rather than inferential statistics, the article interprets influence through converging response patterns and qualitative evidence; it does not claim a statistically estimated causal effect or correlation.

Results and Discussion

Response Rate and Respondent Profile

The study obtained 140 usable questionnaires from 142 postgraduate students and interviews from all three senior librarians. The overall response rate was 98.6%, providing an adequate basis for analysis. The student respondents included 98 Master students (70.0%) and 42 doctoral students (30.0%). 70 (50%) respondents were in their second year, while 47 (34.3%) were in the third year or beyond, indicating that most had sufficient exposure to the university's library services and research requirements.

Table 1: Response rate

Participant category	Targeted (n)	Actual responses (n)	Response rate (%)	Method
Postgraduate students	142	140	98.6	Questionnaire
Senior librarians	3	3	100.0	Interview
Total	145	143	98.6	Questionnaire/Interview

Level of Digital Information Literacy

Training coverage was limited. Seventy-five students (53.7%) reported that they had not received formal training from the library on the use of electronic resources, compared with 65 (46.3%) who had received training. This finding indicates that a slight majority were expected to navigate digital collections without structured library instruction. The result is important because database searching, information evaluation and ethical use are learned competencies that may not develop automatically through exposure to technology.

Among the respondents who answered the follow-up question on training usefulness (valid n = 62), 22 (35.5%) rated the training as very useful and 25 (40.3%) as useful. Therefore, 75.8% of valid respondents who had received training regarded it as useful or very useful. None described the training as not useful. The positive rating confirms the librarians' view that user education improves confidence and purposeful use. It also suggests that the main weakness was not the value of training but its reach and continuity.

Confidence in searching was moderate. A combined 72 respondents (51.5%) were confident or very confident in searching for scholarly materials, while 45 (32.1%) were moderately confident. Twenty-three (16.4%) were only slightly confident or not confident at all. Although these figures show that many students had workable search abilities, nearly half had not reached a strong level of confidence. This may limit the use of advanced database functions, subject-specific vocabulary and systematic search approaches.

Evaluation competence was weaker than search competence. Only 57 respondents (40.7%) were confident or very confident in evaluating the relevance and credibility of information obtained from electronic resources. By contrast, 49 (35.0%) were slightly confident and 13 (9.3%) were not confident at all. Combined, 44.3% had low evaluative confidence. This is a critical gap because the ability to retrieve information does not guarantee the ability to judge its authority, methodological quality, relevance or suitability for academic use. The pattern supports the argument that information literacy instruction should include critical evaluation, not only navigation and access

[4,7].

Table 2: Digital information literacy indicators among postgraduate students

Indicator	Response category	Frequency (n)	Percentage (%)
Received formal library training	Yes	65	46.3
	No	75	53.7
Usefulness of training (valid n = 62)	Very useful	22	35.5
	Useful	25	40.3
	Moderately useful	8	12.9
	Slightly useful	7	11.3
	Not useful	0	0.0
Confidence in searching	Very confident	33	23.6
	Confident	39	27.9
	Moderately confident	45	32.1
	Slightly confident	20	14.3
	Not confident at all	3	2.1
Confidence in evaluating relevance and credibility	Very confident	27	19.3
	Confident	30	21.4
	Moderately confident	21	15.0
	Slightly confident	49	35.0
	Not confident at all	13	9.3

Utilization of Electronic Resources

Electronic resources were widely integrated in postgraduate academic work. Forty-nine students (35.0%) used them daily and 46 (32.9%) weekly. Thus, 67.9% used electronic resources at least weekly. None reported that they never used e-resources for general academic work, although 30 (21.4%) used them rarely. The high daily and weekly use demonstrates substantial demand for digital scholarly information, but the sizeable rarely-use group suggests that access and competence were not uniform.

When asked specifically about research and academic writing, 28 respondents (20.0%) used e-resources very often and 65 (46.4%) often. The combined proportion of 66.4% confirms that e-resources were central to postgraduate research practice. However, 22 students (15.7%) rarely or never used them for research and academic writing, indicating that a minority had not fully integrated library-provided digital resources into scholarly work.

The perceived academic contribution was also high. Thirty-eight students (27.1%) stated that electronic resources supported dissertations, theses, coursework or academic writing to a very great extent, and 42 (30.0%) to a great extent. A further 44 (31.4%) reported a moderate contribution. Overall, 88.5% experienced at least moderate academic support from e-resources. This finding reflects the perceived usefulness dimension of the Technology Acceptance Model, thus, students are more likely to use platforms that clearly contribute to research and academic performance ^[15].

Table 3: Utilization of electronic resources

Indicator	Response category	Frequency (n)	Percentage (%)
General frequency of use	Daily	49	35.0
	Weekly	46	32.9
	Monthly	15	10.7
	Rarely	30	21.4
	Never	0	0.0
Frequency for research and academic writing	Very often	28	20.0
	Often	65	46.4
	Sometimes	25	17.9
	Rarely	19	13.6
	Never	3	2.1
Extent of support to academic work	Very great extent	38	27.1
	Great extent	42	30.0
	Moderate extent	44	31.4
	Small extent	12	8.6
	Not at all	4	2.9

Influence of Digital Information Literacy on Utilization

The descriptive findings and interviews point to a clear practical influence of digital information literacy on utilization. First, students who had received training overwhelmingly judged it useful, while the librarians reported that trained students were more confident in searching databases and using retrieved materials. Second, search confidence was stronger than evaluation confidence, suggesting that many users could locate information but were less prepared to determine its scholarly quality. This difference matters because effective utilization requires both retrieval and critical appraisal. Third, the high frequency of e-resource use and strong perceived

academic contribution coexisted with moderate digital literacy. This indicates that postgraduate research requirements compel many students to use e-resources even when their skills are not fully developed. In such circumstances, use may be frequent but inefficient, limited to familiar platforms, dependent on lecturers or vulnerable to poor source selection. The librarians observed that students with low search skills could have access to resources yet fail to exploit them effectively. This observation aligns with studies showing that information need recognition, searching and evaluation are predictors of e-resource use ^[6,9]. In addition, lecturers and supervisors were important intermediaries, thus, in the broader study, 29.3% of students first learned about available resources through lecturers or supervisors, compared with 25.0% through library orientation. Interview participants explained that students were more likely to use databases and journals when supervisors recommended them or required scholarly sources in assignments and research. There is therefore need for digital literacy development to involve collaboration between librarians and academic departments, with instruction embedded in research methods, proposal development and postgraduate seminars.

Barriers Affecting Digital Literacy and Utilization

Digital literacy operated within significant infrastructural and systemic constraints. Poor or inconsistent internet connectivity was the most severe barrier, with 100 respondents (71.4%) reporting that it hindered use to a great or very great extent. Login and authentication problems affected 82 (58.6%) to the same degree. Limited awareness affected 76 (54.3%), complex platforms affected 72 (51.4%), irrelevant or outdated resources affected 65 (46.4%), and inadequate digital literacy skills affected 62 (44.2%).

These findings show why training alone cannot resolve underutilization. Thus, a student may possess good search skills but be prevented from accessing a database by unstable connectivity or authentication failure. Conversely, a stable platform may remain underused if students are unaware of it or cannot navigate its interface. The results support a combined intervention addressing competence, awareness, usability, infrastructure and resource relevance. Similar interactions between user skills and technical conditions have been reported in Kenyan and African universities ^[8,10,12].

Table 4: Major barriers to effective use of electronic resources

Barrier	Great or very great extent (n)	Combined percentage (%)
Poor or inconsistent internet connectivity	100	71.4
Login or authentication problems	82	58.6
Limited awareness of available e-resources	76	54.3

Barrier	Great or very great extent (n)	Combined percentage (%)
Complex platforms or navigation difficulties	72	51.4
Irrelevant or outdated resources	65	46.4
Inadequate digital literacy skills	62	44.2

Qualitative Insights from Librarians

The interview findings reinforced the quantitative patterns. Thus all three librarians emphasized that awareness and information literacy were major determinants of utilization. Students who attended training were perceived to be more confident in database searching, whereas students with limited awareness often did not know the full range of resources available. One librarian explained that students may have access to e-resources but still fail to use them effectively when they lack searching skills. Another noted that navigation was particularly difficult for users unfamiliar with the different interfaces used by database vendors.

The librarians also emphasized the influence of the academic environment. Notably, lecturer and supervisor recommendations encouraged students to use specific journals and databases, while departmental expectations concerning research and referencing increased purposeful use. E-resources were used most strongly when integrated into coursework, dissertation supervision and research tasks. These findings suggest that library training should not be separated from the curriculum; it should be delivered at points when students have immediate information needs.

In addition, continuous rather than one-off support was considered necessary. Librarians recommended repeated training, awareness creation, research assistance, prompt resolution of login problems, highlighted the need for stronger internet connectivity and reliable remote access because many postgraduate students conduct research away from the physical library. The qualitative evidence therefore confirms that effective utilization results from interaction of competent users, supportive academic staff, responsive librarians and reliable digital systems.

Strategies for Improvement

Respondents strongly supported interventions that address both human and technical dimensions. Improved internet connectivity received the highest support, with 78.6% agreeing or strongly agreeing that it would increase e-resource use. Acquisition of more relevant postgraduate resources was supported by 75.8%, simpler and more user-friendly platforms by 72.9%, more frequent training by 71.4%, increased awareness campaigns by 70.7%, and better library staff support by 69.3%. The pattern indicates that users do not view digital literacy as an isolated

individual responsibility but rather, expect institutional systems to make resources visible, relevant and accessible.

Table 5: Strategies supported by postgraduate students

Proposed strategy	Agree or strongly agree (n)	Combined percentage (%)
Improve internet connectivity	110	78.6
Acquire more relevant postgraduate resources	106	75.8
Provide simpler, user-friendly access platforms	102	72.9
Offer more frequent e-resource training	100	71.4
Increase library awareness campaigns	99	70.7
Strengthen support from library staff	97	69.3

Conclusion

It is concluded that digital information literacy among postgraduate library users at Laikipia University was moderate and materially shaped the effective use of electronic resources. Formal training had not reached a majority of students, yet those who received it generally considered it useful. Students displayed greater confidence in searching than in evaluating the credibility and relevance of information, revealing a particularly important weakness in critical information appraisal. Notably, electronic resources were widely used and made a substantial contribution to dissertations, theses, coursework and academic writing.

The findings demonstrate that resource availability is necessary but insufficient. Thus, meaningful utilization depends on awareness, search competence, critical evaluation, platform usability, reliable internet, functional authentication and responsive support. The convergence of questionnaire and interview evidence indicates that digital information literacy acts as a bridge between electronic resource provision and academic value. However, the bridge can function effectively only when supported by appropriate infrastructure and institutional collaboration.

Because the analysis was descriptive, the article does not quantify the strength of a statistical relationship between digital information literacy and utilization. Future research using individual-level composite scores and inferential analysis could estimate the relationship more precisely. Nevertheless, the present evidence provides a strong practical basis for improving user education and electronic resource services at Laikipia University.

Recommendations

1. There is need for Laikipia University Library to institutionalize continuous digital information literacy training for postgraduate students rather than relying mainly on entry-level orientation.

- Training should be scheduled at proposal, literature review, data analysis and thesis-writing stages.
2. Training content should extend beyond basic database access to advanced search strategies, subject headings, Boolean operators, filters, systematic searching, critical evaluation of authorship and publication quality, citation management, ethical information use and responsible use of emerging AI tools.
 3. The library should collaborate with lecturers, supervisors and departments to embed digital information literacy into research methods units, postgraduate seminars, coursework and supervision processes.
 4. The university should improve internet bandwidth, authentication systems and seamless off-campus access so that students can apply their digital skills without recurrent technical interruption.
 5. The library should simplify access pathways through a clear e-resource portal, subject guides, database tutorials and platform-specific quick guides, while providing prompt help for login and navigation problems.
 6. Awareness campaigns should be conducted regularly through email alerts, the library website, learning management systems, departmental forums and targeted communication on newly acquired or underused resources.
 7. Future studies should collect respondent-level digital literacy and utilization scores and apply correlation or regression analysis to determine the magnitude and statistical significance of the relationship.

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