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The Impact of Digital Curation for Educational Resources: A Case Study of Managing KSUSTA Open Educational Resources (OER)

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Abstract

This study investigates the impact of digital curation on Open Educational Resource (OER) management at Kebbi State University of Science and Technology, Aliero (KSUSTA), assessing awareness, challenges, and strategies for improvement using a quantitative cross-sectional survey design. A proportional stratified random sample of 48 stakeholders, including administrative staff, librarians, ICT officers, faculty, and students involved in OER activities, was drawn from a population of 61. Data were collected through structured online questionnaires focusing on OER accessibility, usage, preservation, and challenges, with descriptive statistics summarizing respondent characteristics and regression and correlation analyses exploring variable relationships. Findings indicate that while KSUSTA has initiated OER curation efforts, significant challenges persist, including limited funding, inadequate infrastructure, insufficient training, and low awareness. Despite these obstacles, respondents acknowledged OER's positive impact on teaching, learning, and research. To enhance OER management, the study recommends that KSUSTA establish a dedicated OER management team, increase funding, invest in digital infrastructure, provide regular training, enhance awareness campaigns, and encourage faculty and student contributions. Implementing these strategies will improve accessibility, organization, and long-term sustainability, fostering a more inclusive and efficient educational environment.

Keywords: Digital Curation, Open Educational Resources (OER), Resource Management, OER awareness and Knowledge Exchange

Introduction

Digital curation is essential for the management and dissemination of Open Educational Resources (OER) in educational institutions like universities and colleges. As the digital landscape evolves, effective curation strategies become vital for organizing, preserving, and providing access to valuable educational content. OER, which comprises freely accessible and openly licensed materials for teaching, learning, and research, presents opportunities to

enhance educational practices and outcomes by enriching the learning experience and making it more flexible and inclusive. However, proper curation is necessary to keep OER accessible, current, and relevant to educators and learners. Without it, the benefits of OER may be underutilized, underscoring the need for institutions to invest in robust curation practices that adapt to the changing dynamics of digital education.

Digital curation ensures OER is accessible, relevant, and well-organized. As the digital environment continues to evolve, curatorial strategies are crucial for preserving educational materials and enhancing learning experiences. By effectively managing digital content, institutions can optimize OER usage, significantly impacting teaching and learning outcomes.

Research increasingly underscores the significance of digital curation in managing educational content. A systematic review highlights its critical role in maintaining the quality and availability of OER in universities (Anas & Salim, 2023). However, challenges remain, particularly in developing the skills of library and information professionals to manage these resources effectively (Yaroshenko & Serbin, 2023). As educational needs evolve, anticipatory generification designing curation practices for future adaptability becomes essential to ensure OER's continued relevance and usability (Parmiggiani & Amagyei, 2023).

At Kebbi State University of Science and Technology, Aliero (KSUSTA), digital curation is essential for managing Open Educational Resources (OER), enhancing access to quality materials, fostering collaborative learning, and addressing resource management challenges. Through effective digital curation, KSUSTA organizes and preserves OER, ensuring students and educators can easily access high-quality resources. This approach tackles affordability and accessibility issues in Nigerian higher education, allowing students to access various learning materials, thus reducing financial barriers and promoting inclusive education (Anas & Salim, 2023; Gichuru, 2023).

However, KSUSTA faces challenges such as limited OER awareness and insufficient infrastructure. Digital curation mitigates these issues by improving resource management and increasing material visibility. The university has established dedicated OER repositories and initiated faculty training programs to promote effective use of curated resources (Gichuru, 2023; Wariowei & Banabo, 2024). Continued efforts are necessary to address challenges like limited institutional support and awareness, ensuring OER's full potential in enhancing education is realized.

Statement of the Problem

Digital curation is key for accessible, organized, and updated Open Educational Resources (OER), enhancing educational quality through effective preservation and management. KSUSTA needs efficient OER management for collaborative learning, resource visibility, and usability.

However, limited awareness, infrastructure, inconsistent strategies, and faculty engagement impede OER curation at KSUSTA. This risks outdated, disorganized, or inaccessible OER, diminishing their impact. Copyright, metadata, and technical support issues further

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complicate management. This impacts students, faculty, librarians, and ICT staff, hindering teaching, learning, and research. Students struggle to access materials, faculty lack curation tools, and staff face management difficulties, underutilizing OER potential.

To improve KSUSTA's OER accessibility, sustainability, and effectiveness, a structured digital curation approach is recommended. Key investments include infrastructure, staff training, metadata standards, and institutional support. Stakeholder collaboration and technology-driven solutions are also vital for organized, efficient resource management, ultimately improving teaching and learning.

Research gaps exist regarding digital curation implementation in Nigerian higher education, especially KSUSTA. While studies explore OER availability, limited research addresses curation challenges in developing systems. This study examines KSUSTA's curation, identifies challenges, and proposes strategies for optimized OER management, fostering inclusive and efficient education.

Research Objectives

This study aims to explore the role of digital curation in managing OER at KSUSTA by assessing awareness, identifying challenges, evaluating existing strategies, and proposing improvements for better accessibility and sustainability in higher education.

1. To examine the role of digital curation in managing Open Educational Resources (OER) at KSUSTA.
2. To assess the level of awareness and usage of OER among students, faculty, and library staff at KSUSTA.
3. To identify the challenges faced in the curation and management of OER at KSUSTA.
4. To evaluate the effectiveness of KSUSTA’s current OER curation strategies and their impact on teaching and learning.
5. To propose strategies for improving digital curation practices for OER at KSUSTA to enhance accessibility, usability, and sustainability.

Literature Review

Digital curation is the active management and preservation of digital information to ensure its long-term accessibility and usability. This process involves organizing, classifying, and disseminating content from various online sources. In educational contexts, digital curation is vital for enhancing students' digital literacy and competencies, helping them navigate the vast amount of online information and access relevant, high-quality content for learning ("Digital Competencies for Content Curation in the Open Education Framework," 2022; Anas & Salim, 2023).

In academic settings, digital curation mitigates information overload by refining search processes and ensuring the dissemination of only the most pertinent content. This targeted

approach improves learning outcomes, allowing students and educators to focus on high-quality resources tailored to their specific needs (Digital Competencies for Content Curation in the Open Education Framework, 2022).

Open Educational Resources (OER) are freely accessible and openly licensed educational materials. They can be used, adapted, and shared by anyone, facilitating collaborative learning and global knowledge exchange (Walker & Macharia, 2023).

OER significantly enhance education by promoting inclusive and collaborative learning environments. They democratize education by providing free resources to a wider audience, thereby improving educational equity. OER enable educators and learners to customize materials for diverse needs and share innovative teaching practices (Walker & Macharia, 2023).

Digital curation focuses on managing digital content for relevance and accessibility, while OER emphasizes adaptability and openness of educational resources. Together, these concepts complement each other in modern education, ensuring valuable digital content remains accessible and adaptable, fostering a more inclusive and collaborative learning experience in the digital age.

Challenges in Managing OER

Managing Open Educational Resources (OER) presents several challenges for educational institutions related to infrastructure, technology adoption, and staff training. These obstacles often hinder effective OER implementation and utilization, limiting institutions' ability to capitalize on these resources for teaching and learning.

A major barrier to OER implementation is the inadequate digital infrastructure in many institutions. Weak digital knowledge infrastructures can disrupt the creation, management, and sharing of OER (Karakoti, 2023). Furthermore, licensing and quality assurance issues complicate the establishment of reliable OER frameworks, as institutions struggle to ensure legal compliance and high quality, delaying widespread adoption ("Online Infrastructures for Open Educational Resources", 2022).

Technology adoption significantly impacts OER management. The Technology Acceptance Model (TAM) highlights that ease of use and user-friendly platforms are essential for OER adoption (Ibrahim et al., 2023). However, many institutions encounter challenges in promoting OER due to limited government support and insufficient financial resources for technology investments (Budiarti et al., 2024). This lack of support impedes the adoption of scalable OER solutions and slows integration into academic programs.

Three health sciences institutions have effectively integrated OER into their programs through focused advocacy. By prioritizing faculty engagement through workshops and partnerships, they have increased submissions for OER grants. Despite challenges like time constraints and limited funding, these institutions have cultivated a culture of OER use and development, resulting in greater participation and resource creation (Kirschner et al., 2023).

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A noteworthy OER initiative has developed a web-based system that prioritizes user experience and utilizes open-source tools, led by a research team to enhance resource sharing among non-commercial users. This collaborative approach ensures active user involvement in the development process, thereby improving both the usability and accessibility of the platform for a broader audience (Thuon & Zhang, 2024).

Methodology

The study employed a quantitative cross-sectional survey design to assess digital curation practices for Open Educational Resources (OER) at KSUSTA. Data were collected at a single point in time using structured questionnaires distributed via Google Forms, focusing on key aspects such as OER accessibility, preservation, usage, and the associated benefits and challenges. Document analysis of existing OER policies and systems at KSUSTA supplemented the survey data, enhancing the study's accuracy and reliability.

The target population for this study comprised 5 Administrative Staff, 15 Librarians, 6 ICT Officers, 15 Faculty Members, and 20 Students involved in Open Educational Resources (OER) creation, management, or usage, totalling 61 individuals. To ensure fair representation of each subgroup, Proportional Stratified Random Sampling was employed. This method allowed for the allocation of responses in proportion to each group's size within the total population, resulting in a final sample of 48 respondents as show below:

Table 1: Population Distribution

S/N	Population	Sample
1.	Administrative Staff	4
2.	Librarians	12
3.	ICT Officers	5
4.	Faculty Members	12
5.	Students (OER Users)	15
	Total	**48**

This approach ensured that each subgroup was adequately represented, thereby enhancing the reliability and generalizability of the findings.

Data analysis employed descriptive statistics to summarize respondent characteristics and survey findings, providing a comprehensive overview of the dataset. Additionally, inferential statistical methods, including regression and correlation analysis, were utilized to examine relationships between key variables. To enhance clarity and facilitate interpretation, the results were systematically presented using tables and charts.

Findings and Discussion

This study's findings offer valuable insights into OER management at KSUSTA, revealing awareness levels, challenges, and opportunities for improvement. Analyzing OER

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accessibility, usage, preservation, and institutional support, the study comprehensively assesses digital curation effectiveness. Examining stakeholder perceptions and statistical relationships, the discussion contextualizes these findings within broader educational resource management. Results highlight KSUSTA's OER successes and identify critical gaps, such as funding, infrastructure, and engagement. Interpreting the data in relation to existing literature, this section recommends improvements to OER adoption and sustainability at the university.

Figure 1: Respondents Role

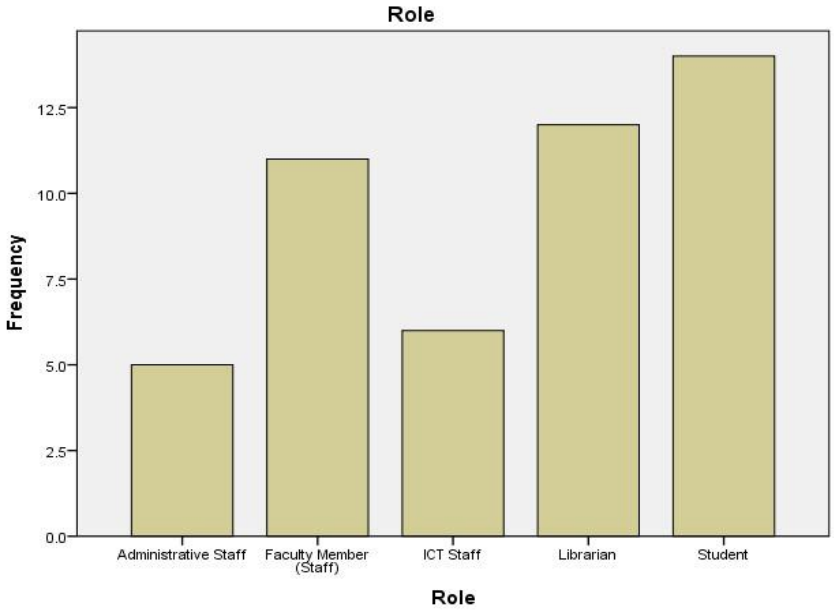


Figure 1 above shows that, Students (29.2%) and librarians (25.0%) constitute the largest respondent groups, followed by faculty (22.9%), suggesting their strong involvement. Administrative staff represent the smallest group (10.4%). Students and librarians account for over half (54.2%) of participants; adding faculty raises this to 77.1%. This indicates the study primarily reflects student, librarian, and faculty perspectives, with limited representation from administrative staff.

Figure 2 below shows that KSUSTA's workforce is largely experienced. Over half (56.3%) have >6 years at the institution, suggesting familiarity with its evolution. A significant 27.1% have 4-6 years, offering balanced perspectives. Newer staff (16.7%) with 1-3 years provide fresh insights, though experienced staff dominate. While 43.8% have ≤6 years' experience, the dominant 56.3% with >6 years shapes perspectives on automation, AI, and changes, emphasizing deep institutional knowledge in the study.

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Figure 2: Years of Experience at KSUSTA

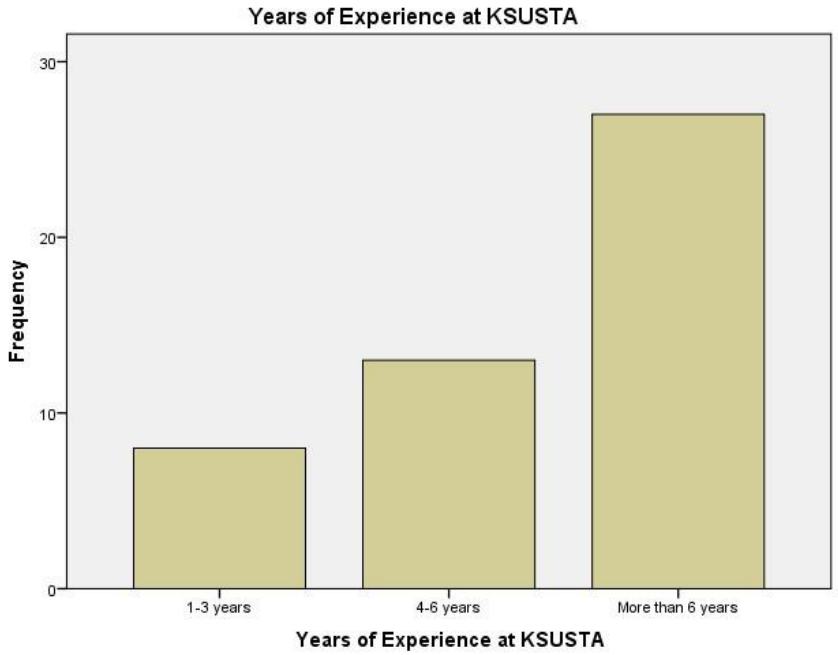


Table 1: How familiar are you with the concept of Open Educational Resources (OER)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Familiar	5	10.4	10.4	10.4
	Somewhat Familiar	12	25.0	25.0	35.4
	Very Familiar	31	64.6	64.6	100.0
	Total	48	100.0	100.0	

Table 1 above reveals that KSUSTA respondents show high OER awareness: 64.6% are very familiar, and 25.0% somewhat familiar. However, 10.4% lack OER knowledge, indicating a need for targeted awareness and training to ensure full utilization.

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Figure 3: How would you rate KSUSTA's current efforts in curating and managing OER?

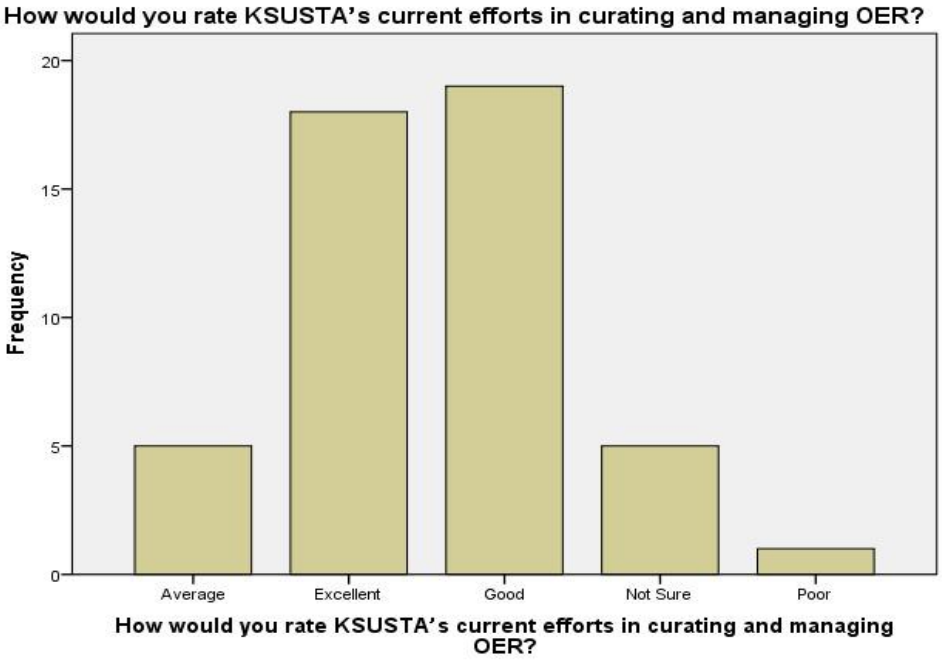
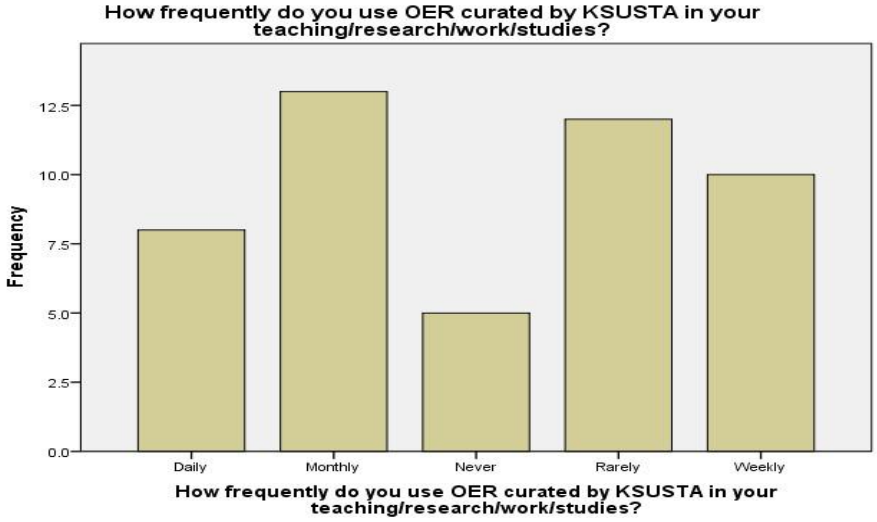


Figure 3 above reveals that; OER curation is viewed positively overall at KSUSTA, but improvements are needed. 77% rated management "Good" (39.6%) or "Excellent" (37.5%). However, 10.4% found it "Average," 10.4% were "Not Sure," and 2.1% rated it "Poor." While KSUSTA is progressing well, increased awareness and engagement will further optimize OER use.



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Table 2: Which of the following OER curation activities are you aware of at KSUSTA? (Select all that apply)

SN	Curation Activities	Frequency	Percent
1.	Cataloging and metadata management	2	4.2
2.	Collection and organization of resources	5	10.4
3.	Collection and organization of resources, Preservation and archiving of materials, Cataloging and metadata management	2	4.2
4.	Collection and organization of resources, Preservation and archiving of materials, Cataloging and metadata management, Ensuring open access and distribution	29	60.4
5.	Collection and organization of resources, Preservation and archiving of materials, Ensuring open access and distribution	2	4.2
6.	I am not aware of any OER curation activities	5	10.4
7.	Preservation and archiving of materials	1	2.1
8.	Preservation and archiving of materials, Ensuring open access and distribution	2	4.2
9.	Total	48	100.0

Table 2 results show widespread, though uneven, awareness of OER curation activities. A significant 60.4% of respondents recognized multiple activities, including resource collection, organization, preservation, cataloging, and open access distribution, indicating recognition of the university's comprehensive approach. However, 10.4% were aware only of resource collection, and 4.2% only of cataloging/metadata management, suggesting a need for improved communication regarding the full scope of activities. Notably, 10.4% reported no awareness, and 2.1% were only aware of preservation/archiving, further highlighting knowledge gaps. Overall, while most respondents are aware of KSUSTA's OER curation, these findings suggest that targeted awareness campaigns, training, and communication strategies are needed to ensure broader understanding and utilization of OER initiatives.

Figure 4: How frequently do you use OER curated by KSUSTA in your teaching/research/work/studies?

KSUSTA's OER usage (Figure 4) shows a mixed landscape: 64.6% of respondents use OER at least monthly, demonstrating significant reliance. However, 25.0% rarely use OER and 10.4% never do, suggesting the need for broader adoption. Barriers for infrequent users may include lack of awareness, accessibility, or integration. KSUSTA should prioritize training, awareness campaigns, and improved access to encourage wider OER use.

Table 3 below reveals the key challenges to effective OER curation and management at KSUSTA include financial constraints, inadequate infrastructure, and insufficient training and awareness, with most respondents reporting multiple obstacles. 58.3% cited a combination of these factors as major barriers, hindering the sustainability of OER initiatives. Copyright and licensing issues were also a concern for 18.8%, limiting OER availability. While lack of funding alone was highlighted by 12.5%, and a mix of funding shortages, training gaps, and limited awareness by 4.2%, isolated issues like insufficient training, technical skills, or limited

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awareness were identified by only 2.1%. Addressing these pressing needs through increased funding, robust institutional support, and comprehensive faculty/student engagement programs is crucial for enhancing OER management and accessibility at KSUSTA.

Table 3: What challenges do you think KSUSTA faces in curating and managing OER? (Select all that apply)

NO		Frequency	Percent
1.	Insufficient training or technical skills	1	2.1
2.	Insufficient training or technical skills, Limited awareness among faculty/students	1	2.1
3.	Lack of funding or resources	6	12.5
4.	Lack of funding or resources, Insufficient training or technical skills, Limited awareness among faculty/students	2	4.2
5.	Lack of funding or resources, Insufficient training or technical skills, Limited awareness among faculty/students, Poor infrastructure or technical support	28	58.3
6.	Lack of funding or resources, Insufficient training or technical skills, Limited awareness among faculty/students, Poor infrastructure or technical support, Copyright and licensing issues	9	18.8
7.	Limited awareness among faculty/students	1	2.1
8.	Total	48	100.0

Figure 5: How do you think these challenges can be addressed?

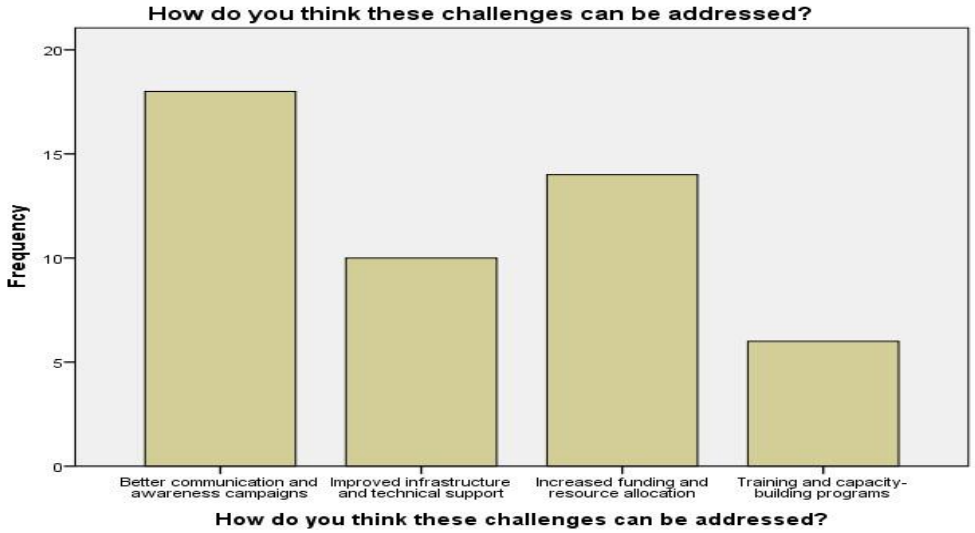


Figure 5 outlines key strategies to address KSUSTA's OER curation challenges. The most frequent suggestion (37.5%) involved boosting OER engagement through enhanced

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communication and awareness campaigns. Securing increased funding (29.2%) was also considered crucial, reflecting financial constraints. Improved infrastructure and technical support for OER maintenance (20.8%) were also emphasized, while training and capacity-building programs for faculty, librarians, and students (12.5%) were advocated to enhance technical skills.

As shown in Table 4, a significant majority of KSUSTA respondents (75%) support a comprehensive OER strategy involving a dedicated team, inter-institutional partnerships, infrastructure investment, and faculty/staff/student training. While some favored individual components like a dedicated team (10.4%), training (4.2%), or infrastructure (2.1%), these were primarily seen as elements of a more holistic approach. Therefore, a multi-faceted strategy encompassing team development, collaboration, infrastructure, and training, alongside active participation from faculty and students, is considered crucial for effective OER management and curation at KSUSTA.

Table 4: What strategies do you believe KSUSTA should implement to improve OER management and curation? (Select all that apply)

NO		Frequency	Percent
1.	Developing a dedicated OER management team	5	10.4
2.	Developing a dedicated OER management team, Investing in digital infrastructure and software, Regular training for faculty, staff, and students	2	4.2
3.	Developing a dedicated OER management team, Partnering with other institutions for resource sharing, Investing in digital infrastructure and software, Regular training for faculty, staff, and students	1	2.1
4.	Developing a dedicated OER management team, Partnering with other institutions for resource sharing, Investing in digital infrastructure and software, Regular training for faculty, staff, and students, Encouraging contributions from faculty and students	36	75.0
5.	Developing a dedicated OER management team, Partnering with other institutions for resource sharing, Investing in digital infrastructure and software, Regular training for faculty, staff, and students, Encouraging contributions from faculty and students,	1	2.1
6.	Investing in digital infrastructure and software	1	2.1
7.	Regular training for faculty, staff, and students	2	4.2
8.	Total	48	100.0

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Conclusion

This study assessed the impact of digital curation on Open Educational Resource (OER) management at KSUSTA, revealing both benefits and areas for improvement. While KSUSTA has invested in OER curation, progress is hampered by limited funding, infrastructure, training, and awareness. Despite these obstacles, respondents generally recognized OER's positive influence on teaching, learning, and research. Most acknowledged KSUSTA's OER curation efforts but stressed the necessity of greater engagement, improved resource management, and enhanced institutional support to maximize OER accessibility and sustainability.

Recommendations

To improve OER management and digital curation at KSUSTA, the following recommendations are proposed:

1. Establish a Dedicated OER Management Team: Create a specialized team comprised of librarians, faculty, and ICT staff to curate, update, and ensure the sustainability of OER.

2. Increase Awareness and Training: Implement workshops, training programs, and communication strategies (webinars, brochures, digital campaigns) to enhance understanding and utilization of OER among faculty, students, and staff.

3. Improve Digital Infrastructure and Technical Support: Invest in user-friendly digital repositories and strengthen technical support services to facilitate seamless access and effective utilization of OER.

4. Secure Adequate Funding and Institutional Support: Advocate for increased funding to support OER development (software, licensing, and maintenance) and seek partnerships with government agencies, private organizations, and academic networks.

5. Encourage Faculty and Student Contributions: Promote OER creation by encouraging faculty to develop and share materials and involving students in OER projects.

6. Foster Collaboration with Other Institutions: Partner with other universities and research institutions and join global OER networks to share best practices, resources, technology, and expand access to diverse educational materials.

Implementing these recommendations will optimize OER management at KSUSTA, ensuring accessible, inclusive, and sustainable digital curation.

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