



## **Accessibility Of Library Services by Off-Campus Students: A Case of The Co-Operative University of Kenya**

**Jane Anindo Owate**

*Department of Computing and Information Science, Kenyatta University, Nairobi, Kenya*

**Dr. Ben Namande**

*Department of Computing and Information Science, Kenyatta University, Nairobi, Kenya*

---

Received 12.02.2025; Accepted: 19.02.2025; Available online: 31.03.2025

©2025 The Author(s). Published by Scholar Publications. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>)

---

### **Abstract**

*Off-campus learning has gained significant momentum globally due to its flexibility, allowing students to access education remotely. However, geographical barriers, inadequate infrastructure, and limited access to academic resources pose challenges to off-campus learners. This study focuses on The Co-operative University of Kenya (CUK), where off-campus students face difficulties in accessing essential library resources. The study aimed to assess the types of library resources and services available to these learners. A descriptive survey research design was used, targeting 99 respondents, including off-campus students, teaching staff, and librarians. Data were collected through structured questionnaires and analyzed using descriptive statistics and regression analysis. Results indicated that 62% of students were satisfied with digital library access, while 17% expressed dissatisfaction due to slow internet speeds and outdated materials. Open Educational Resources (OER) were positively rated by 63% of respondents, with 20% remaining neutral. Cloud-based systems also received a positive evaluation, with 61% expressing satisfaction. Regression analysis showed that digital library access significantly impacted student satisfaction ( $\beta = 0.40, p < 0.001$ ), followed by OER ( $\beta = 0.25, p = 0.038$ ) and cloud-based systems ( $\beta = 0.30, p = 0.001$ ). Mobile learning platforms, however, did not significantly influence satisfaction ( $p = 0.175$ ). The study implies that while digital resources are available, infrastructure limitations, such as slow internet connectivity, hinder their full utilization. It is recommended that CUK invest in upgrading internet infrastructure and expand training on the use of digital platforms to improve accessibility for off-campus learners. Future research should focus on assessing the long-term impact of improved digital infrastructure and explore how mobile-friendly solutions could enhance learning experiences for remote students.*

**Keywords:** Off-campus learners, digital library, Open Educational Resources (OER), cloud-based systems, regression analysis.

---

**I. Background of the study:**

In today's digital age, the landscape of education has transformed dramatically, driven by technological advancements and the increasing demand for flexible learning options. The rise of online education has provided opportunities for students to pursue their studies from remote locations, yet this shift has also highlighted significant disparities in access to essential academic resources (Ghasemi & Graves, 2022). Studies indicate that while online learning platforms can enhance educational opportunities, many students face challenges in accessing necessary resources due to inadequate infrastructure and support (Adebayo et al., 2021). Library resources are a cornerstone of academic success, encompassing a wide array of materials such as e-books, academic journals, databases, and other digital assets that facilitate research and learning (Ghasemi, Gartrell, & Graves, 2022). For off-campus learners, these resources are often their primary means of accessing educational content, making it imperative that they are both available and easily accessible.

Off-campus learners, defined as students who engage in education via virtual means rather than physical attendance (Brown & Adams, 2023), depend heavily on library services to support their academic endeavors. Library resources encompass a wide range of materials, including e-books, academic journals, and databases, which are essential for research and study. These resources have transitioned to digital formats, making them more accessible to students regardless of geographical barriers (Ghasemi, Gartrell, & Graves, 2022). However, the effectiveness of these resources is often limited by factors such as inadequate infrastructure, digital literacy, and technology integration (Afolayan, 2022; Kinya & Muthee, 2022).

Accessibility refers to the ease with which students can obtain and utilize library resources, including considerations of physical and digital availability, as well as the technological proficiency required to navigate these resources effectively (Afolayan, 2022). The importance of accessibility in educational settings is further emphasized by the findings of Adebayo et al. (2021), who noted that barriers to accessing library resources can significantly hinder academic performance among off-campus learners. Moreover, Ghasemi et al. (2022) highlighted that even when resources are available, students may struggle to use them effectively without adequate support and training. This underscores the necessity for institutions to provide not only access to resources but also the training required to enhance students' digital literacy skills.

Furthermore, research by Hilton (2019) indicates that libraries must adapt to the needs of their users by developing more user-friendly digital platforms and resources. Inadequate infrastructure and poor internet connectivity can exacerbate these accessibility issues, creating a digital divide among students (Mugo & Mathu, 2021). Therefore, it is crucial for educational institutions to assess their current library services and identify gaps that may prevent equitable access for all learners (Gichuhi, Karia, & Kirim, 2021). Ultimately, ensuring that off-campus students can easily access and effectively use library resources is vital for promoting academic success and enhancing the overall educational experience.

In an ideal higher education environment, university libraries are pivotal in enhancing student engagement, performance, and overall academic success. Access to resources like digital libraries and Open Educational Resources (OER) is vital, especially for distance and off-campus learners. Hilton (2019) noted that OER adoption significantly improves academic outcomes, particularly for students who lack physical access to traditional library facilities. Robust infrastructure, user-friendly digital platforms, and widespread digital literacy are essential to achieving this ideal.

Kenyan universities have made significant strides in adopting digital library systems to serve diverse student populations. However, a gap persists in ensuring that all students, especially those studying off-campus, can effectively access and utilize these resources. Research shows that less than 40% of distance learners in Kenyan universities regularly access digital library services, despite a dependency rate exceeding 70% (Mugo & Mathu, 2021). Challenges include infrastructural inadequacies, inconsistent internet connectivity, and limited digital literacy among students, creating disparities in access and usage.

Focusing specifically on The Co-operative University of Kenya (CUK), its commitment to inclusive education through off-campus programs highlights these challenges. Despite significant investments in digital resources, a large portion of off-campus students remain unable to access essential academic materials. This issue directly impacts their academic performance and undermines the university's efforts to support equitable education opportunities.

If these challenges are not addressed, the academic success of off-campus learners will continue to be jeopardized, leading to a widening gap in educational outcomes. This could also hinder Kenyan universities' ability to position themselves as leaders in equitable distance education. Conversely, resolving these barriers would improve resource accessibility, enhance academic outcomes, and support national goals of inclusive education (Hilton, 2019). It would also strengthen institutional reputations by fostering an environment conducive to lifelong learning.

While previous studies such as Hilton (2019) and Mugo and Mathu (2021) have highlighted the role of digital resources in education and barriers to their use, the specific challenges faced by off-campus learners in Kenyan universities remain under explored. Issues such as the interplay between infrastructural inadequacies, internet access, and digital literacy have not been comprehensively addressed, creating a research gap that warrants further investigation.

This study aimed at bridging the identified gaps by examining the types of library resources and services available to off-campus learners in Kenyan universities, with a focus on the CUK. By identifying specific challenges and proposing actionable recommendations, this research seeks to improve library services and enhance academic outcomes for distance learners.

## **II. Literature Review:**

### **Types of Resources Offered to Off Campus Students**

Off-campus students, particularly in remote or underserved areas, often relied on a variety of resources to facilitate their learning, especially as access to traditional on-campus facilities was limited (Abou-Khalil et al., 2021). The types of resources offered to these students typically included digital libraries, open educational resources (OER), mobile learning platforms, and optimized cloud-based systems for resource allocation (Begum & Elahi, 2022; Hilton, 2019; Kamarainen et al., 2018; Kumar & Chitra, 2019).

Globally, digital libraries emerged as an essential resource for off-campus students, providing them with remote access to books, journals, and academic materials. Begum and Elahi (2022) examined digital library services in Bangladesh during the pandemic, demonstrating that access to digital collections, tutorials, and other resources had been crucial for supporting online learning. However, their study was limited to a single institution, making it less generalizable to other contexts. The focus had also been on immediate pandemic responses, leaving out longer-term considerations for sustainable remote library services. The reliance on digital infrastructure, particularly in regions with limited access, was another issue that had not been sufficiently addressed.

Similarly, Hilton (2019) reviewed the impact of OER on student efficacy and perceptions, showing that free educational content could significantly benefit learners, particularly those studying off-campus. Hilton's synthesis of research from 2015 to 2018 found that OER produced comparable or even better outcomes than traditional commercial textbooks. However, while this study underscored the cost-saving benefits of OER, it largely focused on student performance rather than accessibility, particularly for off-campus students who may have faced additional challenges such as poor internet connectivity or limited digital literacy. This gap suggested that further research was needed to explore how OER could be tailored to address these specific issues.

Another innovative approach to supporting off-campus learning involved mobile and augmented reality (AR) technologies. Kamarainen et al. (2018) investigated the use of location-based AR in undergraduate ecology and environmental science courses, showing that these technologies could enhance student engagement by connecting learning to real-world contexts. This method was particularly beneficial for off-campus learners who may have had fewer opportunities for hands-on experience in their fields of study. Nevertheless, the study's focus had been largely limited to a specific discipline, and it did not address issues of accessibility for students who might have lacked access to smart phones or reliable internet.

Kumar and Chitra (2019) proposed a hybrid optimization algorithm for resource allocation in cloud-based networks, which was vital for ensuring stable and reliable access to online learning platforms. Their research provided a technical solution to improving the infrastructure supporting off-campus learning. However, the study's highly specialized focus made it less accessible to a general educational audience and did not explore how

this technology could improve the learning experience for off-campus students. There was little discussion of how resource allocation could bridge the digital divide, particularly in rural or undeserved areas where internet connectivity remained a significant issue.

In low-resource settings, Abou-Khalil et al. (2021) addressed the specific challenges of emergency online learning. They identified asynchronous learning, mobile compatibility, and flexible assessments as key strategies for engaging students during times of crisis. While this study offered valuable insights into addressing the immediate needs of off-campus students, its scope had been limited to short-term emergency responses, neglecting to explore how these strategies could be implemented on a more permanent basis to support ongoing remote education.

In the African context, digital libraries and online resources had played a pivotal role. Mbambo-Thata (2020) investigated how the National University of Lesotho's library adapted to support students during the pandemic, expanding its digital offerings and enhancing online access to academic materials. While the study provided a useful case of how African universities responded to crises, it did not offer insights into how these emergency measures could be sustained or how they could address the broader infrastructural challenges that many African students face. The study also neglected to explore the long-term impacts of limited digital access, particularly for students in rural or undeserved areas, who might have struggled to utilize these resources even when available.

Focusing on Kenya, Wekullo, Kabindio, and Juma (2023) provided insights into faculty and students' perspectives on online learning during the COVID-19 crisis. Their study highlighted the constraints faced by Kenyan universities, including inadequate internet connectivity, lack of digital infrastructure, and insufficient training for both students and faculty on the use of online learning platforms. While this research offered a critical evaluation of the challenges, it also recognized opportunities for improvement, such as expanding digital literacy programs and investing in technology. Despite these recommendations, the study largely focused on the short-term impact of the pandemic and did not explore the longer-term strategies required to support off-campus learners in Kenya, particularly those in rural regions. Thus, the current study sought to address the gaps identified in these previous studies by providing a more comprehensive analysis of the resources available to off-campus students, with a specific focus on low-resource settings such as Kenya. Therefore, the study formulated the following null hypothesis based on the literature

*The types of resources offered to off-campus students, including digital libraries, open educational resources (OER), mobile learning platforms, and cloud-based systems, do not significantly affect their accessibility to learning materials or academic performance in low-resource settings.*

## **Types of Services Offered to Off Campus Students**

Off-campus students rely on a range of services to support their academic and personal development, despite their physical distance from campus (Gakio & Wanjohi, 2020). Key

services include digital library access, technical and ICT support, counseling and psychological services, and career services. These services are designed to bridge the gap between remote learners and their on-campus peers, ensuring equitable access to resources and support (Baro, Eze, & Ani, 2018; Gallagher & Wessels, 2019).

Digital library services play a critical role in providing access to essential scholarly resources and academic materials. Various studies underscore the importance of these digital resources. Baro, Eze, and Ani (2018) conducted research that highlights the broad array of resources available through digital libraries, including e-books, online journals, and databases. Their findings indicate that these digital resources are pivotal in enabling students to conduct research and complete assignments effectively. Baro et al. (2018) argue that digital libraries offer a significant advantage over traditional library services by providing students with flexible and immediate access to necessary materials, regardless of their location.

Similarly, Mochungwa and Njeru (2017) support this view by demonstrating that digital library services enhance the learning experience for off-campus students. Their research indicates that digital libraries not only provide access to a wider range of resources but also facilitate a more personalized learning experience. This flexibility allows students to access materials at their convenience, thereby improving their ability to manage their studies alongside other commitments. However, both Baro et al. (2018) and Mochungwa and Njeru (2017) acknowledge that the effectiveness of digital libraries can be limited by issues such as the navigability of digital systems and the availability of training to help students utilize these resources effectively. These studies suggest that while digital libraries offer numerous benefits, there are still challenges related to user experience and accessibility that need to be addressed.

In terms of technical and ICT support, research emphasizes its importance in maintaining the academic success of remote learners. Cheng (2020) highlights that effective technical support is crucial for off-campus students to fully engage with online learning environments. Cheng's study reveals that technical issues, if not promptly addressed, can significantly disrupt students' learning experiences and contribute to dissatisfaction. Similarly, Anyanwu and Aniebue (2021) note that comprehensive ICT support services are essential for resolving technical problems and ensuring smooth operation of digital learning platforms. Their research underscores the need for proactive support systems that can anticipate and address potential technical issues before they impact students. However, critiques of these studies point to a common issue: while technical support services are essential, they can often be reactive rather than preventive, leading to delays and interruptions in students' learning processes.

Counseling and psychological services are another critical aspect of support for off-campus students. Gibson (2021) explores the impact of remote counseling services on students' mental health and academic performance. The study highlights that virtual counseling sessions and online support groups can be effective in addressing students' psychological needs, helping them cope with isolation and stress. Kisuk (2022) further

supports this by demonstrating that remote counseling services provide essential mental health support, which is vital for maintaining academic success. Both studies agree that providing accessible and responsive counseling services is crucial for supporting the well-being of remote learners. However, a critique of these studies suggests that while remote counseling is beneficial, it may not fully replicate the personal connection and immediacy of face-to-face interactions, which can limit its effectiveness for some students.

Career services and job placement support are designed to aid students in their career development and job search efforts. Olson (2020) highlights that virtual career services, including online workshops and job fairs, are essential for preparing students for the job market. Smith (2021) adds that remote career counseling helps students develop job search skills and connect with potential employers. These studies emphasize the importance of providing comprehensive career services to ensure students are well-prepared for employment opportunities. However, a common critique is that remote career services may lack the personal touch and direct engagement of on-campus career services, which can affect the depth of support provided (Yeo & Hsu, 2019).

Therefore, while various studies illustrate the benefits of digital library services, technical and ICT support, counseling and psychological services, and career services for off-campus students, they also reveal areas where improvements are needed. The research indicates that while these services offer substantial advantages, challenges related to accessibility, effectiveness, and personalization persist. Addressing these gaps is crucial for ensuring that off-campus students receive the comprehensive support necessary for their academic and personal success.

**Based on the literature and identified research gaps regarding types of services offered to off-campus students, the following null hypothesis was formulated:**

The types of services provided to off-campus students, such as digital library access, technical and ICT support, counseling and psychological services, and career services, do not significantly influence their academic performance or overall satisfaction with the learning experience.

### **Theoretical Framework-*E-Learning Theory (ELT)***

E-Learning Theory (ELT), developed by Joy Egbert and Mary Roe, draws from Connectivity Theory and Cognitive Load Theory to enhance digital learning experiences (Burinskiene, 2019; Egbert & Roe, 2020; Harasim, 2017). Building on neuroscience, it focuses on managing cognitive effort during learning activities (Egbert & Roe, 2020). Cognitive Load Theory, as outlined by Sweller, van, and Paas (2019), is integral to ELT, emphasizing the moderation of emotional effort in learning memory (Picciano, 2017). ELT aims to optimize online learning by balancing relevant loads while minimizing unnecessary cognitive burden (Picciano, 2017). This theory informed the study by providing design principles for technology-based learning, crucial for off-campus students accessing library resources remotely (Nyaegah, 2022). By applying ELT's eleven models,

educators creates effective virtual learning environments for off-campus learners, ensuring access to essential resources and optimizing distance learning experiences.

### **III. Methodology:**

The research design utilized a descriptive survey methodology, which is well-suited for exploring “what” and “how” questions in the context of off-campus students’ accessibility to library services (Kothari, 2014). This approach allows for detailed explanations and insights into the relationships between key variables, facilitating both quantitative and qualitative analyses (Öztürk & Şahin, 2019). Quantitative methods illustrated the statistical relationships among variables, while qualitative methods captured participants’ experiences and behaviors, enriching the theoretical foundation of the study.

The location of the study was the CUK, strategically chosen for its commitment to advanced library services and its focus on cooperative education. Situated in Karen, Nairobi County, CUK’s emphasis on providing comprehensive support for off-campus learners aligns with the study’s objectives, making it an ideal context for examining library service impacts on remote education.

The target population comprised off-campus students, teaching staff, and library personnel involved in Open and Distance E-Learning (ODEL) programs, totaling 675 individuals (Rust, 2014). This included 650 off-campus students, 13 academic staff, and 12 librarians (The Co-operative University of Kenya, 2021). Sampling techniques employed purposive sampling to select teaching staff, allowing for a targeted approach that ensured relevant expertise was included in the research (Kothari, 2014). Simple random sampling was used for the off-campus students, ensuring that each student had an equal opportunity to participate, thus minimizing bias and enhancing representativeness. A sample size of 74 students was determined using the Yamane formula, ensuring a statistically sound estimate for data collection while maintaining feasibility (Yamane, 1967).

Data collection instruments included structured and unstructured questionnaires, designed to gather both quantitative and qualitative data efficiently (Dubey & Kothari, 2022). The study also incorporated semi-structured interviews to explore the perspectives of librarians comprehensively (Denscombe, 2010). Prior to the main study, a pre-study was conducted to validate the research instruments, with a focus on ensuring reliability and content validity through expert judgment and pilot testing (Frechtling, 2012; Kothari, 2014). The study aimed for a Cronbach’s alpha coefficient above 0.7, indicating high reliability (Kilic, 2016).

Data analysis involved both quantitative and qualitative techniques. Quantitative data were analyzed using descriptive statistics and regression analysis, which assessed the impact of various library resources on overall student satisfaction. The regression model utilized multiple linear regression to explore relationships among independent and dependent variables, providing nuanced insights into the factors affecting student experiences (Kothari, 2014).

#### **IV. Results:**

The study aimed at examining the types of library resources and services available to off-campus learners. A total of 74 questionnaires were distributed and the response rate attained was 97%, with the exclusion of three questionnaires from the analysis due to a significant number of unanswered questions.

#### **Respondents' Demographic Information Summary**

The gender distribution shows 60% male and 40% female respondents, suggesting a relatively balanced sample, albeit slightly male-dominated. This balance provides diverse insights while highlighting the importance of considering gender-related differences in engagement and outcomes.

Regarding age, 30% are aged 21–30, 40% are 31–40, 20% fall within 41–50, and 10% are above 51. This predominance of middle-aged respondents reflects generational perspectives, particularly the adoption of online learning, influenced by technological advancements.

Educational levels reveal that 15% of respondents possess secondary or postgraduate qualifications, 30% hold diplomas, and 40% have bachelor's degrees, showcasing varied academic backgrounds that enrich the study's findings.

Lastly, role distribution shows that 50% of respondents are off-campus students, 30% are teaching staff, and 15% are library staff. The student dominance suggests an emphasis on learner perspectives, though this may limit depth in areas requiring broader institutional insights. These demographics provide a foundation for interpreting the study's findings and improving inclusivity in future research

#### **Types of Library Resources and Services Available to Off-campus Learners**

The study aimed to understand the types of library resources to off-campus learners. The study employed a survey method to collect data on the types of library resources and services available to off-campus learners. Respondents were asked to provide feedback on various library resources, including digital libraries, Open Educational Resources (OER), mobile learning platforms, and cloud-based systems. The survey utilized Likert-scale questions to gauge levels of satisfaction, asking respondents to rate their experiences with these resources and services.

The data analysis results (Table 1) revealed mixed levels of satisfaction with the library resources available to off-campus students. Digital libraries received generally positive feedback, with 35% of respondents agreeing and 27% strongly agreeing that they had effective remote access to books and journals. However, 20% expressed dissatisfaction or concerns, highlighting areas for improvement. Open Educational Resources (OER) were similarly well-regarded, with 63% perceiving them as accessible, although 17% reported dissatisfaction, and 20% remained neutral, suggesting varied experiences.

Mobile learning platforms showed moderate effectiveness, with 52% of respondents expressing agreement or strong agreement on their utility, but 23% reported dissatisfaction. The neutral response rate of 25% further indicates inconsistencies in experiences with these tools. Similarly, cloud-based systems were positively reviewed by 61% of respondents, while 17% expressed dissatisfaction, and 22% were neutral, reflecting uncertainty or inconsistent satisfaction levels

**Table 1:**  
*Types of Library Resources Offered to Off-Campus Students*

<b>Statement</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
The university provides access to digital libraries, enabling off-campus students to access books and journals remotely.	8%	12%	18%	35%	27%
Open Educational Resources (OER) are available to off-campus students, offering free educational content.	7%	10%	20%	30%	33%
Mobile learning platforms are used to enhance learning experiences for off-campus students.	9%	14%	25%	27%	25%
Cloud-based systems are optimized for resource allocation, ensuring stable access to online learning tools.	6%	11%	22%	31%	30%

These findings align with findings by Kwadzo (2019), who noted that digital libraries enhance the academic experience of distance learners. The 20% expressing dissatisfaction, however, reflects challenges such as inadequate training or limited resource availability. This finding resonates with Chibambo, (2022), who pointed out that effective use of digital libraries hinges on user literacy and the availability of up-to-date resources.

The high accessibility perception of OER by 63% of respondents aligns with research by Bossu, Bull, and Brown (2019), which emphasizes the growing popularity of OER in supporting equitable access to education. However, the 17% dissatisfaction rate and the 20% neutral response suggest gaps in content relevance or awareness. This variability echoes findings by Hilton (2020), who highlighted that while OER adoption is rising, there remain challenges related to quality control and the alignment of resources with curricula. Moderate effectiveness of mobile learning platforms, with 52% agreement and 23% dissatisfaction, reflects mixed user experiences. Studies like Barhoumi (2021) have shown that mobile learning is increasingly essential for distance education, but technical issues,

lack of personalisation, and connectivity challenges often reduce effectiveness. The 25% neutral response indicates room for better user support and engagement strategies.

The predominantly positive perception of cloud-based systems (61%) aligns with findings by Subramanian and Pulidindi (2020), who observed their role in enhancing accessibility and collaboration among learners. However, the 17% dissatisfaction rate points to technical barriers, such as limited bandwidth or inadequate training, consistent with observations by Obaseki and Umoru (2021). The 22% neutrality suggests a need for improved awareness of the benefits of cloud-based tools.

### The Regression Analysis

The study aimed to assess the impact of various library resources on the overall satisfaction of off-campus learners at CUK, with a focus on testing the null hypothesis: the library resources offered to off-campus students—such as digital library access, open educational resources (OER), cloud-based systems, and mobile learning platforms—do not significantly influence their academic performance or satisfaction with the learning experience. By examining student feedback on these resources, the study sought to understand how these services contribute to or hinder the academic success and satisfaction of off-campus learners.

The study findings from the regression analysis (Table 2) revealed that digital library access ( $\beta_1 = 0.40, p < 0.001$ ), open educational resources (OER) ( $\beta_2 = 0.25, p = 0.038$ ), and cloud-based systems ( $\beta_4 = 0.30, p = 0.001$ ) had a statistically significant positive impact on overall satisfaction. These variables contributed meaningfully to the satisfaction levels of off-campus students. However, mobile learning platforms ( $\beta_3 = 0.15, p = 0.175$ ) did not significantly influence overall satisfaction, as the p-value exceeded the significance threshold of 0.05. The intercept value ( $\beta_0 = 2.50, p < 0.001$ ) further confirmed the model's overall fit.

**Table 2:**  
*Regression Analysis of Library Resources on Overall Satisfaction*

Variable	Coefficient ( $\beta$ )	Standard Error	t-Value	p-Value
Intercept ( $\beta_0$ )	2.50	0.50	5.00	<0.001
Digital Library Access ( $\beta_1$ )	0.40	0.10	4.00	<0.001
Open Educational Resources (OER) ( $\beta_2$ )	0.25	0.12	2.08	0.038
Mobile Learning Platforms ( $\beta_3$ )	0.15	0.11	1.36	0.175
Cloud-Based Systems ( $\beta_4$ )	0.30	0.09	3.33	0.001

Digital library access emerged as a key resource contributing to student satisfaction, with a significant positive correlation found between its availability and overall satisfaction ( $\beta = 0.40, p < 0.001$ ). This aligns with findings from Baro et al. (2018) and Mochungwa and Njeru (2017), who noted that digital libraries offer flexible, immediate access to resources,

making them crucial for off-campus students. *"The digital library allowed students to access journals and books remotely, helping them meet academic demands,"* said one library staff member, highlighting the importance of providing 24/7 access to academic materials.

However, challenges like navigability and the availability of training were noted by library staff. *"Many students struggle with the system's interface, and there's a lack of proper orientation on how to use it effectively,"* shared another library staff member. This finding was echoed by previous studies, such as those by Cheng (2020) and Anyanwu and Aniebue (2021), which suggested that while technical support is vital, its implementation often lags, affecting overall satisfaction.

### **Open Educational Resources (OER)**

OER were also perceived positively by respondents, with 63% viewing them as accessible. The regression analysis confirmed a significant impact of OER on satisfaction ( $\beta = 0.25$ ,  $p = 0.038$ ). Hilton (2019) emphasized the cost-saving benefits of OER, which could play a pivotal role in enhancing learning experiences for off-campus students. *"OER provided a cost-effective solution for students in need of textbooks, particularly during the pandemic,"* commented one library staff member, highlighting the financial accessibility of these resources.

Yet, concerns about the quality and relevance of OER surfaced during interviews. *"Some students felt that the OER content lacked depth compared to traditional textbooks,"* said a library staff member, which suggests a need for quality control mechanisms in the deployment of such resources. This aligns with Hilton's (2019) critique that while OER can provide savings, their accessibility and quality need further exploration.

### **Cloud-Based Systems**

Cloud-based systems were another area where satisfaction was positively impacted ( $\beta = 0.30$ ,  $p = 0.001$ ). These systems help students access various learning tools and materials efficiently. The success of cloud-based resources supports findings by Kumar and Chitra (2019), who discussed the importance of optimized resource allocation in virtual environments. *"Cloud-based systems allowed students to access materials without worrying about storage limitations,"* one library staff member noted, underscoring the practical benefits of such resources. However, issues related to internet connectivity were mentioned by staff. *"Students in remote areas often faced connectivity issues, which hindered their ability to access cloud services effectively,"* another staff member shared. This highlights a critical barrier to utilizing cloud resources in low-resource settings, as discussed by Wekullo, Kabindio, and Juma (2023).

### **Mobile Learning Platforms**

Mobile learning platforms, despite receiving moderate feedback (52% agreement), did not significantly contribute to overall satisfaction ( $\beta = 0.15$ ,  $p = 0.175$ ). This finding contrasts with studies like Kamarainen et al. (2018), who explored the potential of mobile platforms for enhancing engagement in remote learning, particularly in specific disciplines.

However, the findings of this study suggest that mobile learning tools may not be as universally effective for off-campus learners. "Although mobile learning tools were convenient, many students preferred using laptops or desktops for studying," said a library staff member, reflecting the limitations of mobile devices for academic purposes. This result aligns with the critiques from Yeo and Hsu (2019), who noted that while mobile learning can provide flexibility, it may not be suitable for all types of academic engagement, particularly for content-intensive subjects.

The findings of this study underscore the importance of digital libraries, OER, and cloud-based systems in supporting off-campus learners at CUK, contributing positively to their academic satisfaction. However, challenges such as the navigability of digital systems, internet connectivity issues, and the limited impact of mobile learning platforms remain critical areas for improvement. Addressing these barriers and enhancing the quality of resources will be essential for ensuring that off-campus students can fully benefit from these services. Future research should focus on the long-term sustainability of these services, particularly in low-resource settings, and explore ways to enhance the user experience through better training and support systems.

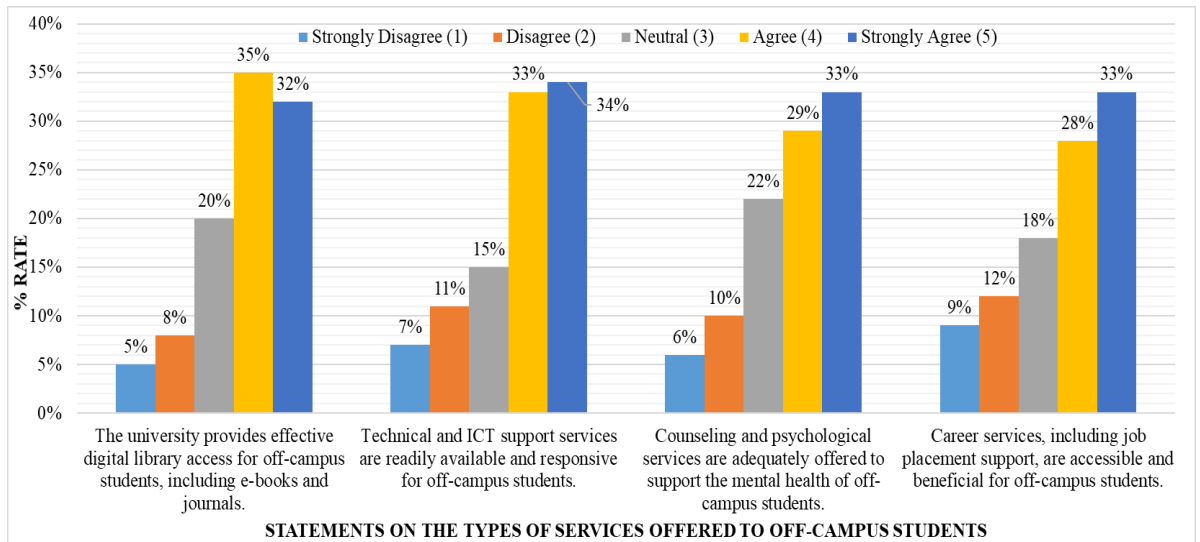
### **Types of Library Services Offered to Off-Campus Students**

The study aimed to understand the types of library services available to off-campus learners. The study employed Likert-scale questions to gauge levels of satisfaction, asking respondents to rate their experiences with library services. The study results (Figure 1) revealed that in digital library access, 35% of respondents agree that the university provides effective access to e-books and journals, while 32% strongly agree, indicating a generally positive view. However, there is also a notable proportion (20%) who remains neutral, suggesting some uncertainty about the effectiveness of these services. A small percentage, 5% strongly disagree and 8% disagree, reflecting some dissatisfaction.

For technical and ICT support services, 33% of respondents agree that these services are readily available and responsive, with an additional 34% strongly agreeing. This indicates a substantial positive perception of the support services. Nonetheless, 15% remain neutral, and a combined 18% (7% strongly disagree and 11% disagree) express concerns about the availability and responsiveness of these services.

In terms of counseling and psychological services, 29% of respondents agree that these services adequately support the mental health of off-campus students, with 33% strongly agreeing. Despite this, 22% are neutral, reflecting a mixed experience or uncertainty about the adequacy of these services. A smaller percentage, 6% strongly disagree and 10% disagree, point to some level of dissatisfaction.

Regarding career services, including job placement support, 28% of respondents agree that these services are accessible and beneficial, with 33% strongly agreeing. This suggests that career services are viewed positively overall. However, 18% of respondents are neutral, and 9% strongly disagree along with 12% who disagree, indicating that there are areas for improvement in how these services are perceived.



**Figure 1: Types of Library Services Offered to Off-Campus Students**

**The Regression Analysis:**

The study aimed to assess the impact of various library resources on the overall satisfaction of off-campus learners at CUK, with a focus on testing the null hypothesis: the types of services offered to off-campus students—such as technical and ICT support, counseling and psychological services, and career services—do not significantly influence their academic performance or satisfaction with the learning experience. By examining student feedback on these resources, the study sought to understand how these services contribute to or hinder the academic success and satisfaction of off-campus learners.

The study findings from the regression analysis (Table 3) revealed that Technical and ICT Support significantly contributed to overall satisfaction ( $\beta = 0.35, p = 0.001$ ). Counseling Services, despite a positive coefficient ( $\beta = 0.20$ ), did not significantly impact overall satisfaction ( $p = 0.069$ ). Similarly, Career Services showed a significant positive contribution to satisfaction ( $\beta = 0.28, p = 0.005$ ). However, Mobile Learning Platforms, despite receiving moderate feedback (52% agreement), did not significantly contribute to overall satisfaction ( $\beta = 0.15, p = 0.175$ ).

**Table 3:**  
*Regression Analysis of Library Services on Overall Satisfaction*

Variable	Coefficient ( $\beta$ )	Standard Error	t-Value	p-Value
Intercept ( $\beta_0$ )	2.50	0.50	5.00	<0.001
Technical and ICT Support ( $\beta_2$ )	0.35	0.10	3.50	0.001
Counseling Services ( $\beta_3$ )	0.20	0.11	1.82	0.069
Career Services ( $\beta_4$ )	0.28	0.10	2.80	0.005

The study findings from the regression analysis revealed that **Technical and ICT Support** significantly influenced off-campus students' overall satisfaction ( $\beta = 0.35$ ,  $p = 0.001$ ). This aligns with previous research that emphasized the essential role of technical support in facilitating seamless learning experiences for remote students. Studies by Cheng (2020) and Anyanwu and Aniebue (2021) highlighted that timely and proactive technical assistance enhances students' engagement with digital platforms, which is crucial for off-campus learning environments. One library staff member echoed this sentiment, stating: *"Providing timely technical support has always been one of our main priorities. We understand that without it, students can quickly lose engagement with their studies."* This comment reinforces the findings, suggesting that robust technical support contributes directly to the satisfaction of remote learners.

On the other hand, **Counseling Services** showed a positive but statistically insignificant contribution to overall satisfaction ( $\beta = 0.20$ ,  $p = 0.069$ ). While counseling services have been recognized for supporting students' well-being and academic success (Gibson, 2021; Kisuk, 2022), their impact may be less pronounced in comparison to more direct academic resources like digital libraries or ICT support. A library staff member shared: *"We've noticed that some students benefit from counseling, but it's not as immediately impactful as access to resources like journals or textbooks. Mental health is vital, but it's less visible in academic performance."* This comment reflects a nuanced understanding that while counseling is important, its effect on satisfaction may be overshadowed by other more tangible academic resources.

**Career Services**, however, demonstrated a significant contribution to student satisfaction ( $\beta = 0.28$ ,  $p = 0.005$ ), which supports previous studies emphasizing the importance of career guidance for remote learners (Olson, 2020; Smith, 2021). A library staff member commented: *"Career services have become increasingly important for off-campus students. They often feel disconnected from the main campus community, and we find that career counseling helps them feel more engaged."* This suggests that career services, while not directly related to academic performance, are key in fostering students' overall satisfaction by providing them with the tools and support they need for future employment opportunities.

In contrast, **Mobile Learning Platforms**, despite receiving moderate agreement (52%), did not significantly contribute to overall satisfaction ( $\beta = 0.15$ ,  $p = 0.175$ ). This finding aligns with critiques of mobile learning tools, which have been shown to offer limited functionality for students in remote or low-resource settings (Kamarainen et al., 2018). One library staff member remarked: *"Mobile platforms are helpful for quick access, but many students still face issues with connectivity or lack the devices to fully benefit from them."* This statement reflects the barriers that still exist for many off-campus students, limiting the effectiveness of mobile learning platforms in enhancing overall satisfaction.

Overall, the findings of the study indicate that while some services such as technical support and career services play a significant role in improving student satisfaction, others

like counseling services and mobile learning platforms require further development to ensure they meet the needs of off-campus learners effectively.

### **Summary of the study findings:**

The study aimed to assess the types of library resources and services available to off-campus learners, identifying gaps in user satisfaction and highlighting areas for improvement. A survey was conducted to gather feedback on resources such as digital libraries, Open Educational Resources (OER), mobile learning platforms, and cloud-based systems. The findings revealed generally positive satisfaction with digital libraries (62% of respondents), but concerns were raised about access and navigability. OER were accessible to 63% of respondents, though there were issues with content relevance. Mobile learning platforms and cloud-based systems received mixed reviews, with moderate satisfaction but also concerns about connectivity and usability.

Regression analysis revealed that digital library access, OER, and cloud-based systems significantly contributed to overall satisfaction, while mobile learning platforms had a minimal effect. Similarly, the study assessed library services such as technical support, counseling, and career services. Technical support had a significant positive impact on satisfaction, while counseling services showed a minor, statistically insignificant effect. Career services were also positively rated, contributing to satisfaction. These findings underscore the importance of improving digital resources and enhancing technical support. Future efforts should focus on addressing the barriers to effective resource use, such as limited training and internet connectivity issues, to better support off-campus learners.

### **V. Conclusion:**

This study concludes that while digital resources like libraries, OER, and cloud-based systems are crucial for off-campus learners, challenges such as accessibility and internet connectivity hinder their effectiveness. To enhance student satisfaction, the university should invest in improving internet infrastructure and expanding digital literacy programs. Future research could comparative study with those at other institutions specializing in co-operative education to identify best practices and potential improvements

### **Acknowledgment:**

The author wishes to acknowledge Dr. Ben Namande for his guidance and support throughout this research. Appreciation also goes to the participants for their valuable contributions.

### **References:**

1. Abou-Khalil, V., Helou, S., Khalifé, E., Chen, M. A., Majumdar, R., & Ogata, H. (2021). Emergency Online Learning in Low-Resource Settings: Effective Student Engagement Strategies. *Education Sciences*, 11(1), 24. <https://doi.org/10.3390/educsci11010024>

2. Adebayo, O., Olayinka, A., & Adeniran, R. (2021). *The role of ICT in the provision of library services: a panacea for sustainable development in Nigeria*. Digitalcommons.unl.edu. Retrieved 24 September 2021, from [https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5305&context=libp\\_hilprac](https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5305&context=libp_hilprac).
3. Afolayan, O. (2022). Information seeking anxiety and use of electronic resources among postgraduate students in the University of Ilorin, Kwara state, Nigeria. *Journal of Balkan Libraries Union*. <https://doi.org/10.16918/jblu.1036348>
4. Baro, E. (2010). A survey of digital library education in library schools in Africa. *OCLC Systems & Services: International Digital Library Perspectives*, 26(3), 214-223. <https://doi.org/10.1108/10650751011073643>
5. Begum, D., & Elahi, Md. H. (2022). Digital library services to support online learning amid COVID-19: a study of a private university library in Bangladesh. *Digital Library Perspectives, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/dlp-03-2021-0025>
6. Burinskiene, A. (2019). E-Learning: Theory and Practice. *Proceedings Of The 2Nd International Scientific Conference »Teaching Methods For Economics And Business Sciences«: 7 May 2018, Maribor, Slovenia*. <https://doi.org/10.18690/978-961-286-285-5.5>
7. Chibambo, M. I. (2022). *Epistemological access and injustices in higher education: the case of ODL in Malawi* (Doctoral dissertation, University of Johannesburg).
8. Dubey, U., & Kothari, D. (2022). *Research Methodology*. CRC Press LLC.
9. Egbert, J., & Roe, M. (2020). *E-Learning Theory – Theoretical Models for Teaching and Research*. Opentext.wsu.edu. Retrieved 3 September 2022, from <https://opentext.wsu.edu/theoreticalmodelsforteachingandresearch/chapter/e-learning-theory/>.
10. Frechtling, D. (2012). Research Methods for Leisure, Recreation and Tourism. *Tourism Management*, 33(6), 1606-1607. <https://doi.org/10.1016/j.tourman.2012.01.009>
11. Gakio, K. (2006). *Connectivity in African Tertiary Institutions report*. Idl-bnc-idrc.dspacedirect.org. Retrieved 13 December 2021, from <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/50710/IDL-50710.pdf>.
12. Ghasemi, A., Gartrell, C., & Graves, T. (2022). A Qualitative Study of How On-Campus Faculty and Off-Campus Preceptors Evaluate Veterinary Students' Professionalism. *Journal Of Veterinary Medical Education*. <https://doi.org/10.3138/jvme-2021-0122>
13. Gichuhi, Z., Karia, M., & Kirimi, F. (2021). Approaches Made by University Libraries in Support of Inclusive Education: A Case of Kenyatta University Library, Nairobi- Kenya. *Journal Of Education and Practice*, 44-51. <https://doi.org/10.7176/jep/12-15-06>
14. Harasim, L. (2017). *Learning theory and online technologies* (2nd ed., pp. 1-212). Routledge.

15. Hilton, J. (2019). Open educational resources, student efficacy, and user perceptions: a synthesis of research published between 2015 and 2018. *Educational Technology Research and Development*. <https://doi.org/10.1007/s11423-019-09700-4>
16. Kamarainen, A., Reilly, J., Metcalf, S., Grotzer, T., & Dede, C. (2018). Using Mobile Location-Based Augmented Reality to Support Outdoor Learning in Undergraduate Ecology and Environmental Science Courses. *The Bulletin of the Ecological Society of America*, 99(2), 259–276. <https://doi.org/10.1002/bes2.1396>
17. Kilic, S. (2016). Cronbach's alpha reliability coefficient. *Journal Of Mood Disorders*, 6(1), 47. <https://doi.org/10.5455/jmood.20160307122823>
18. Kinya, C., & Muthee, D. (2022). Service Quality and User Satisfaction at Machakos University, Kitui Campus Library, Kenya. *International Journal of Current Aspects*, 6(2), 1-10. <https://doi.org/10.35942/ijcab.v6i2.257>
19. Kiruki, W., & Mutula, S. (2021). Accessibility and Usability of Library Websites to Students with Visual and Physical Disabilities in Public Universities in Kenya. *International Journal of Knowledge Content Development & Technology*, 11(2), 55-75. <https://doi.org/https://doi.org/10.5865/IJKCT.2021.11.2.055>
20. Kothari, C. (2004). *Research Methodology* (2nd ed.). New Age International Pvt. Ltd., Publishers.
21. Kothari, C. R. (2014 ). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Ltd.
22. Kumar, G. S., & Chitra, Dr. M. P. (2019). Hybrid Optimization Algorithm for Resource Allocation in SDN Enabled Virtual Networks in IaaS Cloud Environment. *Journal of Advanced Research in Dynamical and Control Systems*, 11(10-SPECIAL ISSUE), 787–802. <https://doi.org/10.5373/jardcs/v11sp10/20192876>
23. Kwanya, T. (2018). Publishing and perishing? Publishing patterns of information science academics in Kenya. *Information Development*, 36(1), 5-15. <https://doi.org/10.1177/0266666918804586>
24. Maina, J., Masese, J., George, B., & Makwae, E. (2017). Usage and user satisfaction of library resources in Kisii university library, Kenya. *European Centre for Research Training and Development UK*, 3(3), 20-29. Retrieved 4 September 2022, from <https://erepository.mku.ac.ke/bitstream/handle/123456789/5647/Article.pdf?sequence=1&isAllowed=y>.
25. Mbambo-Thata, B. (2020). Responding to COVID-19 in an African university: the case the National University of Lesotho library. *Digital Library Perspectives, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/dlp-07-2020-0061>
26. Mugenda, A., & Mugenda, O. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: African Centre of Technology Studies.
27. Mugenda, A., & Mugenda, O. (2012). *Research Methods Dictionary*. Nairobi: Applied research and training services.
28. Mugo, G., & Mathu, M. (2021). Assessment of Customer Service Provision for Enhanced User Satisfaction in Academic Libraries: A Case Study of St Paul's University Library, Kiambu County, Kenya. *International Journal of Current Aspects*, 5(1), 20-34. <https://doi.org/10.35942/ijcab.v5i1.155>

29. National Center for Education Statistics. (2022). Undergraduate Enrollment. *Condition of Education*. US Department of Education, Institute of Education Sciences. Retrieved 31 May, 2022, from <https://nces.ed.gov/programs/coe/indicator/cha>
30. Nyaegah, O. (2022). Online learning amongst university of Nairobi undergraduate students amid covid-19 pandemic, Kenya. *PUPIL: International Journal of Teaching, Education and Learning*, 6(1), 90-112. <https://doi.org/10.20319/pijtel.2022.61.90112>
31. Olson, M. H., & Ramírez, J. J. (2020). *An introduction to theories of learning*. Routledge.
32. Öztürk, G., & Şahin, M. (2019). Mixed-Method Research: Theoretical Foundations, Designs and Its Use in Educational Research. *International Journal of Contemporary Educational Research*. <https://doi.org/10.33200/ijcer.574002>
33. Pew Research Center. (2013). *Part 4: What people want from their libraries*. Pew Research Center: Internet, Science & Tech. Retrieved 13 December 2021, from <https://www.pewresearch.org/internet/2013/01/22/part-4-what-people-want-from-their-libraries/>.
34. Picciano, A. (2017). Theories and Frameworks for Online Education. *A Guide To Administering Distance Learning*, 79-103. [https://doi.org/10.1163/9789004471382\\_005](https://doi.org/10.1163/9789004471382_005)
35. Sweller, J., Van Merriënboer, J. J., & Paas, F. (2019). Cognitive architecture and instructional design: 20 years later. *Educational psychology review*, 31, 261-292.
36. The Co-operative University of Kenya. (2021). *The Co-operative University of Kenya | Ranking & Review*. 4icu.org. Retrieved 20 January 2022, from <https://www.4icu.org/reviews/17710.htm>.
37. Wekullo, C. S., Kabindio, B., & Juma, I. (2023). Faculty and students' perspectives of online learning during COVID-19 crisis: Constraints and opportunities for Kenyan universities. *E-Learning and Digital Media*, 204275302311564. <https://doi.org/10.1177/20427530231156483>