

Original Article

Availability and Accessibility of Open Educational Resources in Distances Learning Centers in Oyo State, NigeriaAyotunde Atanda Falade*¹, Joy Abosede Peter ²

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Abstract

The fusion of Information Communication Technology (ICT) and open educational resources (OER) has brought about a transformative wave in global education, elevating both student engagement and academic performance. Despite these positive strides, persistent challenges such as gender-based technology disparities and social factors remain prevalent. The COVID-19 pandemic has acted as a catalyst, accelerating the adoption of OER. This study examined availability and accessibility of open educational resources in distance learning centers in Oyo state.

A descriptive survey research design was adopted; the study gathered data through a Google Form-based online questionnaire, reaching 500 open educational students across three distance learning centres, 381 valid responses were retained for analysis, which was performed using SPSS software.

The findings unveiled that open educational resources were available in distance learning centres, predominantly through e-library platforms. Students possessed access to essential devices and could connect to OER through their centre's website and free Wi-Fi. A noteworthy negative correlation between resource availability and access was identified. Furthermore, a significant gender-based difference was noted, favouring male students with higher access to OER compared to their female counterparts.

The study affirmed the availability of open educational resources in distance learning centers and the students' access to these resources. Recommendations included efforts to enhance availability, improve student access.

Keywords

Integration, Technology, Lifelong learning, e-learning infrastructure.

Introduction

Following the COVID-19 pandemic, the education sector has witnessed significant changes, marked by a swift transition to distance learning and the widespread use of open educational resources (OERs) to ensure continuous access to quality education.

The availability and accessibility of Open Educational Resources (OER) in distance learning centres' represent pivotal aspects in the evolving landscape of education, particularly in Oyo State. As the global educational paradigm continually embraces digital transformations, the integration of technology and open educational resources has emerged as a transformative force, shaping the way students engage with learning materials.

Oyo State, situated in south-western Nigeria, is not immune to the dynamic shifts in educational methodologies driven by Information Communication Technology (ICT) and the adoption of OER. Distance learning centres, serving as crucial hubs for remote education, play a key role in disseminating knowledge to a diverse student population. Understanding the availability and accessibility of OER within these centres is paramount for assessing the

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efficacy of distance education initiatives and ensuring equitable educational opportunities for all.

Al-Shorman and Bawaneh (2018), defined distance education as a method of study where teachers and students do not meet in a classroom but use the Internet, email, mail, etc., to have classes. Distance education has been defined as formal learning in which the learner and the facilitator are separated in time and space (Bušelić, 2012). It encompasses part-time courses/studies, open and distance learning, and online education, and especially for post-secondary education, distance learning and digital learning/education.

The significance of OER lies in its potential to democratize education by providing cost-effective and easily accessible learning materials. However, challenges such as technological disparities and gender-based differences persist, influencing the extent to which students can avail themselves of these resources.

Exploring the nuances of OER availability and accessibility in distance learning centers within Oyo State is essential for policymakers, educators, and stakeholders in shaping strategies that foster inclusive and technology-enhanced learning environments. This study aim into the intricacies of OER in distance education; seeking to unravel the factors influencing their availability, the extent of student access, and the implications for the educational landscape in Oyo State

The literature on the availability and accessibility of OER in distance learning centers in Oyo State reflects a complex interplay of challenges and opportunities. While technological advancements have the potential to democratize education, ongoing efforts are required to address barriers and ensure that the benefits of OER are realized by all students in the pursuit of quality distance education.

Open and distance Learning emerged as an effective tool to motivate and educate the learners, particularly residing in the hilly and far-flung areas and who are not able to have access to education due to tough geographical conditions, social and cultural taboos, and economic backwardness (Paliwal, 2019). ODL can easily provide quality higher education and global learning at the doorstep of the learners at a cheaper cost. It also encourages learners to share their knowledge and innovative thoughts by using various ICT tools in a wider context to the learners across the world (Bordoloi, 2018). Distance education overcomes and transcends the geographical boundaries of many learners making education more relevant and useful to learners' lives by way of providing a rich curriculum and a wide range of courses to choose from (Osaat & Nsereka, 2012).

It is important to develop an understanding of what underpins the engagement of students in online learning environments (Kahn et al., 2017). The OER tools enable student to achieve something extra outside the course curriculum, develop curiosity and active participation. The recent developments and advancements in ICT have developed several opportunities to communicate and transmit information quickly across the globe. (Padmo, Idrus&Ardiasih 2019). Various studies proved that ICTs with Internet connection facilitate in-depth study, which enhances learning and promotes knowledge generation (Mutambo, Aguti & Winterbottom, 2018).

The idea of opening opportunity for education is an old one and has emerged in different ways in different countries, but the particular connection to distance education that can be documented, can be traced directly to the American visionary, Charles Wedemeyer. Kabir (2016), explained that Wedemeyer promoted a simple but powerful belief that, access to education should be and could be "open", with his realization that conventional face-to-face instruction would not be sufficient to attain the vision of providing access to education for all, unless the barriers of time and space associated with face-to-face teaching are removed. Wedemeyer thus popularized the concept "distance education", which he called "independent study".

Idowu (2012) stated that Distance education is a process whereby an individual or institution packages information in a learnable way with the view to helping another individual or group of individuals to learn at a distance. In line with the general aim of education, distance education employs all available media, methods and techniques to enable learners access needed information at a distance. Availability and utilisation of electronic resources: Universities that offer distance learning programmes provide relevant electronic resources that are organized in a mechanized way to facilitate users' access to information.

Availability of electronic resources is an act of making resources available and creating awareness of their existence to the users for use (Ternenge & Kashimana, 2019). Electronic resources available for distance learning are managed and delivered by the institution's libraries provide to the users. They provide access to authoritative, reliable, accurate and timely access to information (Anyim, 2018). Distance learners depend on the provisions of the information communication technologies for access to accurate and authoritative information to bridge the physical distance divide.

To maintain effective distance learning program, electronic resources such as computers and bandwidth are readily available for browsing the internet and downloading of files while online public access catalogue is also provided for access to the library resources (Mesagan, Anyim, Ubogu, & Echezona, 2017). Distance learners turn to the internet for accessing electronic resources for their learning and research activities. Ternenge and Kashimana (2019) opined that underutilisation of electronic resources to inadequate computers; poor internet connectivity limited subscribed titles, power outages, difficulty to access and use, lack of relevant e-resources and lack of adequate assistance from the library.

Iyoro (2015), also added that electronic resources available for the distance learning programmes were mostly outdated and the current ones were not enough to those that need them. Electronic resources to a very extent have helped distance learners across the world to gain easy access to huge information reservoirs; quick information; navigation with different search options; easy citations of scholarly works; uploading and updating of information; storing and disseminating information - and many other advantages such as flexibility, time, space, cost-effectiveness and ease of archiving (Tekale & Dalve, 2012).

In addition, electronic resources provide accurate and timely information, especially for distance students who depend greatly on the electronic resources for information to champion their research and collaboration with other students across the globe for intellectual growth (Nwagbo & Ugwuanyi, 2012). As much as what is obtainable in the conventional academic environment, electronic resources have benefitted distance learning institutions in various ways but not limited to reduction of pressure on academic libraries for physical storage space for books and journals as it provides unlimited access to digital information for users (Lefuna, 2012). In the contemporary era, the focus of users has shifted from traditional library resources to electronic resources as it dominates research activities of distance learners due its easy-to-use potentials (Hadagali et al., 2012).

The educational landscape in Oyo State, Nigeria is witnessing a significant transformation marked by a growing reliance on distance learning, facilitated by the integration of Open Educational Resources (OER). Despite the acknowledged potential of OER to democratize education, concerns arise regarding the current status of their availability and accessibility within the state's distance learning centres.

Schneider and Council (2020) highlighted the unprecedented shift to distance learning during the COVID-19 era, emphasizing the necessity for readily available and accessible OERs to support remote education. This stresses the crucial role of OERs in ensuring continuous learning opportunities amidst disruptions caused by the pandemic.

Furthermore, Garad, Al-Ansi, and Qamari (2021) explored the role of e-learning infrastructure and cognitive competence in distance learning effectiveness during the COVID-19 pandemic. Their findings emphasized the importance of not only the availability but also the usability and effectiveness of OERs in facilitating distance learning. This suggests a need for future research to explore the factors influencing the usability and effectiveness of OERs in diverse learning environments.

Moreover, the study by Zhang et al. (2020) focused on accessibility within OERs and practices for disabled learners. The findings emphasized the need for inclusive OERs that cater to the diverse learning needs of disabled individuals. This highlights a critical knowledge gap in the current literature regarding the accessibility of OERs for marginalized and disabled learners, pointing towards the need for future research to explore strategies for enhancing the inclusivity of OERs in distance learning environments.

In addition, the study conducted by Huang et al. (2020) showcased the application of open educational practices and resources during the COVID-19 outbreak in China. Their findings demonstrated the potential of OERs in mitigating disruptions caused by the pandemic, further emphasizing the importance of ensuring the widespread availability and accessibility of OERs in distance learning centres.

However, the study by Goudeau et al. (2021) illuminated the potential exacerbation of social class achievement gaps due to lockdown and distance learning during the COVID-19 pandemic. This raises concerns about the equitable access to OERs in distance learning, indicating a need for future research to explore strategies for addressing socio-economic disparities in OER availability and accessibility.

Furthermore, the study by Ferraro et al. (2020) provided insights into the perceptions of distance learning in the COVID-19 era, particularly in Southern Italy. While the study did not explicitly focus on OERs, the findings underscored the need to understand the contextual factors that influence the availability and accessibility of OERs in diverse regional and cultural settings.

Finally, Yu et al. (2012) highlighted the potential of using linked data to annotate and search educational video resources for supporting distance learning, emphasizing the need for innovative technological solutions to enhance the accessibility of OERs in virtual learning environments.

The core issues highlighted in the statement of the problem include the uncertainty surrounding the extent of OER availability in Oyo State's distance learning centres. The scarcity or abundance of these resources can profoundly influence the diversity and comprehensiveness of learning materials accessible to students engaged in distance education. Additionally, the statement addresses technological disparities prevalent in the region, encompassing challenges related to reliable internet connectivity and access to essential devices, which may impede students' ability to fully utilize OER.

Furthermore, gender-based discrepancies in OER access and availability constitute a vital aspect of the problem statement. The inquiry into whether male and female students have equitable opportunities to benefit from OER or if there are discernible disparities contributing to educational inequities is essential for understanding the nuanced dynamics of OER utilization in distance learning centres within Oyo State, Nigeria. Addressing these concerns is crucial for devising targeted strategies that promote inclusive, technologically equitable, and gender-sensitive distance education experiences. Understanding these nuances is essential for developing targeted strategies that promote equitable access and utilization of OER among male and female students in Oyo State.

The main purpose of this study was to examine the availability and access to open educational resources in distance learning centres in Oyo State. Specifically, this study:

1. determined the availability of open educational resources in distance learning centres in Oyo State;
2. determined distance learning students' access to Open educational resources for learning
3. examined the relationship between students' availability and access of open educational resources for learning;
4. determined the influence of male and female on distance learning students' access to open educational resources for learning.

Research design

The study adopted a descriptive research design of the survey type using online survey. This design is found appropriate because it is a scientific method which involves observing and describing the behaviour of the subject without influencing it in any way.

Participants

The population for this study consisted of all Distance Learning Students in Nigeria. The target population consisted of Distance Learning Students in Oyo State, Nigeria. A multi-stage sampling procedure was adopted for this study; purposive sampling technique was used to select the three sampled distance learning centres in Oyo State for this study because they are the only three distance learning centres in Oyo State.

Instrument

The instrument for this study was online survey questionnaire which was used to collect data for this study. Online survey was chosen for this study because it was useful for gathering data in real time from a large sample at different location. The survey instrument was designed with Google form and links were generated and shared amongst 500 respondents.

Result

Respondents' Demography

Frequency count and percentages were used to describe the characteristics of respondents' demographics in this study, as shown in the tables below. A total of 500 participants accessed the questionnaire via linked provided by the researcher.

Demographic information

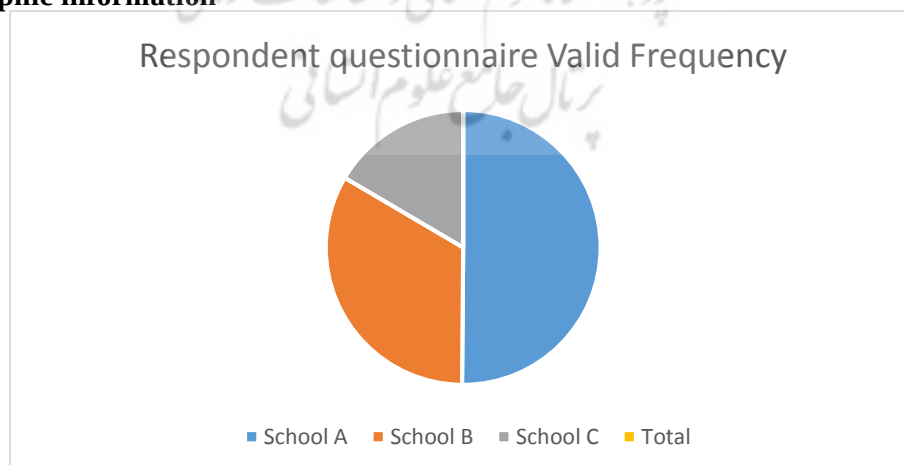


Figure1. Distribution of Respondents' Valid Questionnaire for the online survey

Figure 1 above shows the distribution of valid questionnaires for the online survey conducted across three schools, School A, School B, and School C. School A had the highest number of

valid questionnaires (38.2%), followed by School B (25.4%) and School C (12.6%). School A contributed a substantial portion of the valid responses, while School C had the lowest. The table also shows data on non-valid questionnaires, which were likely incomplete or contained errors. School A had 63 invalid questionnaires, School B had 37, and School C had 19. The total number of valid questionnaires is 381, and the total number of non-valid questionnaires is 119.

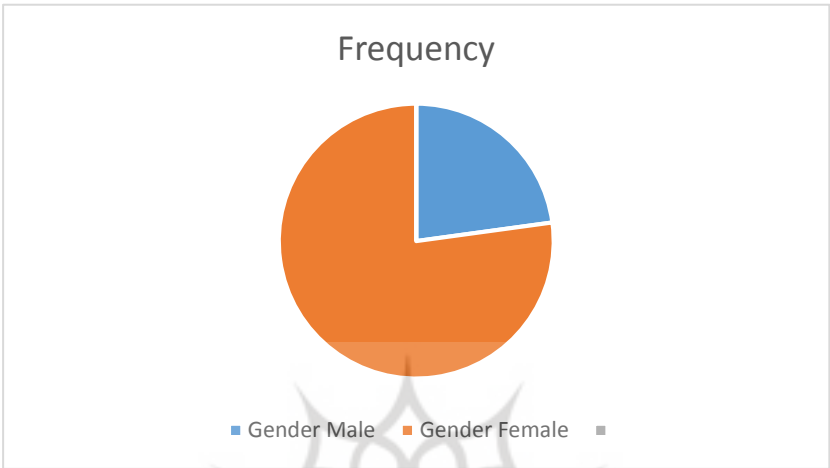


Figure 2. Distribution of Respondent by Gender

Figure 3 shows the gender distribution of 381 respondents in a survey or study. The majority, approximately 77.2%, are female, with males comprising around 22.8%. This demographic information is crucial for understanding the representation of different genders within the study population.

Question 1: What are the available open educational resources in distance learning centres in Oyo State?

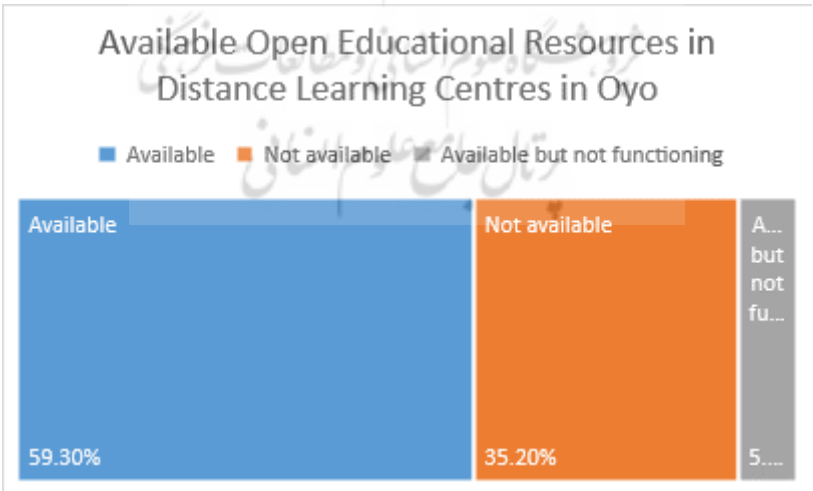


Figure 3. Available Open Educational Resources in Distance Learning Centres in Oyo State, Nigria

Figure 3 provides an overview of the availability and functionality of various open educational resources in Distance Learning Centres in Oyo. It presents data in a tabular format

with several columns that detail the frequency and percentages of each resource's availability, non-availability, and availability but not functioning.

Table 5 outlines 14 different open educational resources commonly used in distance learning. These resources encompass a wide range of digital materials, including educational CDs, e-libraries platforms, e-books, e-journals, e-magazines, online newspapers, online research reports, online news, online maps, online instructional videos, online instructional audio, online catalogues, Encarta, and e-Dictionaries.

The "Available" column shows the number of centres where each resource is accessible. For instance, e-libraries platforms are available in 261 out of the surveyed centres, making them the most prevalent resource, with a percentage of 68.5%. Other commonly available resources include online news (75.6%), online instructional videos (73.0%), and e-books and e-manuscripts (70.6%).

The "Not available" column indicates the number of centres where specific resources are not accessible. It is noteworthy that no resource is entirely unavailable, as each resource has some presence in the centres surveyed. However, e-Dictionaries are the least available, with 35.2% of centres lacking access, followed by Encarta at 49.9%.

The column labelled "Available but not functioning" reveals the resources that, while physically present, are not operational or not fully utilized. This can be due to technical issues, lack of maintenance, or other factors. Notably, e-Dictionaries and Encarta have the highest percentages in this category, with 5.5% and 11.8%, respectively, suggesting that a notable portion of these resources may be in a state of disrepair or underutilized. The table 5 provides a mean score for each resource, indicating the overall effectiveness and functionality of these resources in the surveyed centres. Resources with higher mean scores tend to be more readily available and functional, while those with lower scores face challenges in terms of accessibility and functionality.

Question2: How do distance learning students' access the needed open educational resources for learning?

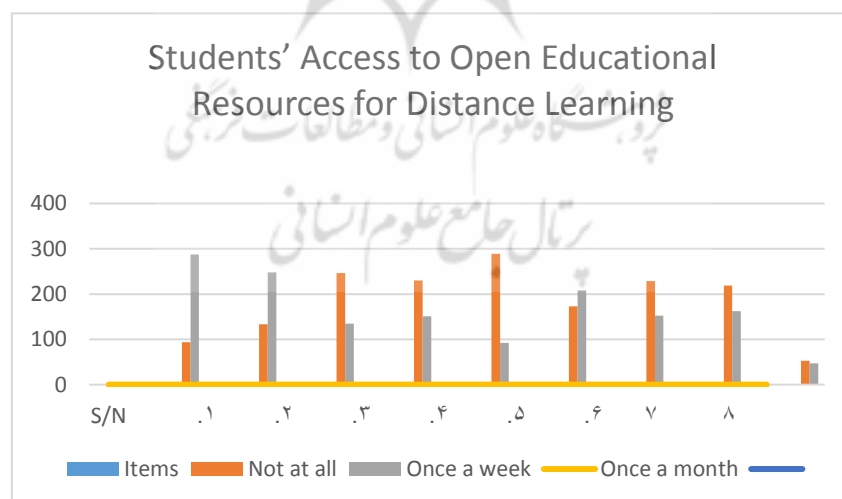


Figure 4. Students' Access to Open Educational Resources for Distance Learning

Figure 4 provides insights into students' access to open educational resources for distance learning, with a focus on the frequency of access to various resources. The table is structured to present data on different items related to open educational resources and the corresponding frequency of access, percentages, mean values, and remarks.

Firstly, it is important to note that the data in the table indicates that a significant portion of the surveyed students do have access to various open educational resources. Approximately 75.3% of the students reported using reading devices such as smartphones, tablets, or laptops once a week. This suggests that a substantial majority of the students have access to these essential devices for eLearning.

About 65.1% of students reported that their centres made open educational resources available on the centre's website once a week. This indicates that a substantial portion of students can access resources online via their centre's website. A little over half of the students (64.6%) reported that their centre provides free internet connectivity (Wi-Fi) once a week. This is crucial for students who rely on online resources.

About 60.4% of students subscribe to internet connectivity (data) once a week. This shows that a majority of the students take the initiative to have their own internet access, which is essential for distance learning. A significant percentage of students (75.9%) reported having access to free internet connectivity (Wi-Fi) provided by the college once a week. This is a valuable resource for students who may not have their own internet access.

Over half of the students (54.6%) have e-book readers on their devices once a week. This indicates that students have the capability to access electronic books, which are commonly used in eLearning. About 60.1% of students reported having access to e-resource apps once a week. These apps are crucial for accessing and reading digital content, which is an integral part of eLearning. A majority of students (57.5%) reported that e-resources are available in their centre's library in different formats once a week. This suggests that the physical library also plays a role in providing access to digital learning materials.

There is no significant difference between male and female students' access to open educational resources for learning.

Figure 5: t-test Analysis of Gender Difference in Students' Access to Open Educational Resources for Distance Learning

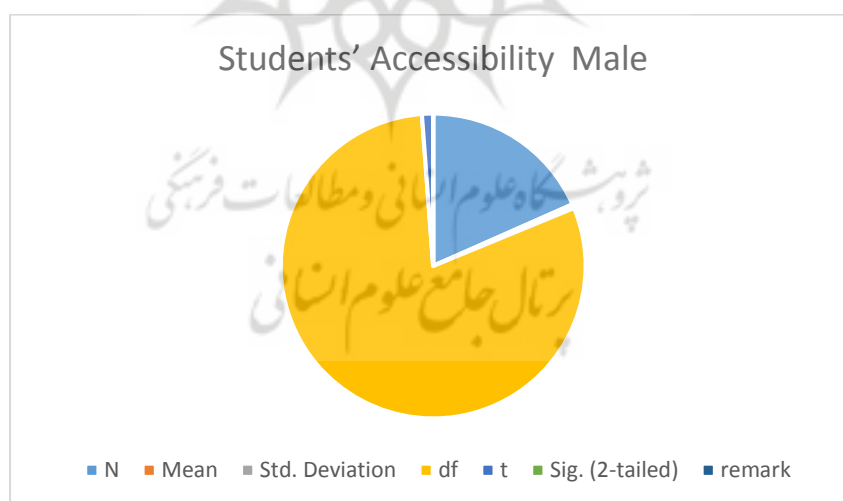


Figure 5 presents a t-test analysis comparing gender differences in students' access to open educational resources for distance learning. The sample size is 87 male students and 294 female students. The mean score for male students is 1.46, while female students have a mean score of 1.18. The standard deviation for male students is 0.501, while female students have a standard deviation of 0.382. The degrees of freedom (df) are calculated using the specific type of t-test. The calculated t-statistic is 5.623, and the p-value is 0.000, indicating a statistically significant difference between the groups. The Remark column confirms the "significant" difference, confirming the statistical significance of the gender difference.

Discussions

The study's findings shed light on the availability and access of open educational resources in distance learning centres in Oyo, providing valuable insights into the current state of open educational in this context. The following discussions elaborate on these findings with relevant citations

The study reveals that various open educational resources are commonly used in distance learning centres in Oyo state, with e-libraries platforms being the most prevalent, available in approximately 68.5% of the surveyed centres. This suggests that institutions are making efforts to provide students with electronic access to educational materials, aligning with the integration of technology in education (Jagadesh, 2017). However, it's noteworthy that certain resources, such as e-Dictionaries and Encarta, are less available or non-functioning, indicating a need for improvement in resource provision.

The findings indicate that a significant portion of students have access to essential devices like smart phones, tablets, or laptops, which are crucial for accessing open educational materials (Mathew, Joro, & Haruna, 2015). Furthermore, students commonly have access to open educational resources through their centre's website and free internet connectivity (Wi-Fi), which aligns with the importance of reliable internet access in distance education (Bordoloi, 2018). Many students also subscribe to internet connectivity (data) themselves, emphasizing their commitment to accessing educational materials.

While the availability of open educational resources is relatively high, their utilisation by students appears to vary significantly. Educational CDs, e-libraries platforms, e-books, and e-manuscripts are reported to be rarely used, suggesting potential areas for improving resource utilisation and promoting active learning (Yusuf, 2011). On the other hand, certain resources like e-journals, e-magazines, online newspapers, and online research reports are reported as never used by a majority of students, indicating missed opportunities for accessing valuable scholarly content (Mutambo, Aguti, & Winterbottom, 2018).

The study's findings reveal a statistically significant negative correlation between the availability of open educational resources and students' access to these resources. This suggests that, paradoxically, as the availability of resources increases, students' access tends to decrease. One possible explanation for this could be that despite the availability of resources, other factors such as technical difficulties or inadequate training might hinder access (Uzoagba, 2019).

Conclusion

The study's findings provide valuable insights into the open educational resources in distance learning centres, shedding light on various aspects of availability and access, patterns among students.

The study reveals that a diverse range of open educational resources is commonly available in distance learning centres. E-library platforms emerge as the most prevalent resource, underscoring the institutions' efforts to provide digital access to educational materials. However, the limited availability of resources like dictionaries and Encarta raises questions about the comprehensiveness of the digital resources offered.

A significant proportion of students have access to essential devices such as smart phones, tablets, or laptops, which are crucial for engaging with open educational materials. The fact that most students can access open educational resources through their centre's website and free Wi-Fi connectivity highlights the role of digital infrastructure in facilitating access to educational content. Additionally, the study underscores students' commitment to learning by subscribing to internet connectivity (data) themselves.

Despite the availability and access to open educational resources, there is a notable gap in their utilisation. Some resources, including educational CDs, e-libraries platforms, e-books,

and e-manuscripts, are rarely used by students. Moreover, certain valuable resources like e-journals, e-magazines, online newspapers, and online research reports are reported as never used by a majority of students.

The study's findings reveal interesting correlations between the availability and access of open educational resources. A negative correlation between availability and access suggests that despite the resources being available, students' access tends to decrease. The study's analysis of gender differences in access and availability of open educational resources indicates that male students tend to have higher access scores compared to female students. This gender gap in access underscores the need for targeted interventions to bridge this divide and ensure equitable opportunities for all learners.

Recommendations

The study's recommendations centre on enhancing the availability, and accessibility to open educational resources (OER) in distance learning centres in Oyo State, Nigeria. Key suggestions include improving the provision of resources, addressing underutilized materials through active learning strategies, optimizing access by identifying and resolving technical barriers, launching comprehensive awareness campaigns for specific resources, implementing gender equity initiatives to bridge access gaps, and emphasizing continuous monitoring and evaluation for adaptive strategies. These recommendations collectively aim to create a more comprehensive, equitable, and engaging digital learning environment for students, fostering optimal use of OER in their educational journey.

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