



## Research Article

## Demographic Factors and the Use of Open Access Resources (OARs) by Undergraduates at the University of Ibadan

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### Abstract

Open access resources have become essential for enhancing academic experiences and fostering research among undergraduate students. Yet, the role that demographic factors play in explaining the use of these resources in Nigeria is understudied, particularly within Nigerian higher education contexts. This study investigated the relationship between demographic factors (age, level, gender, and academic discipline) and the use of open access resources (OARs) by undergraduates at the University of Ibadan. The study adopted a descriptive survey design, and a sample of 261 students from three faculties was selected using a two-stage sampling technique. Data were collected through questionnaires and analyzed using descriptive and inferential statistics. SPSS was used to analyze the data collected for the study. Findings revealed that OARs like free electronic books (79.8%), open access journals (65.8%), and image portals (61.1%) were commonly used for assignments, personal reading, and research. The study found that a negligible relationship exists between demographic factors (age, gender, level) and OAR usage. The study concluded that while OARs are widely used by undergraduates, demographic factors do not significantly influence the usage pattern. It recommends promoting underutilized resources, improving internet speed, and enhancing infrastructure to support effective OAR usage among undergraduates.

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## I. INTRODUCTION

As a result of initiatives undertaken over the past decades, Open Access Resources (OARs) have improved educational experiences and research by making them more accessible. For Nigeria's premier university, the University of Ibadan, undergraduates' use of OARs is crucial for academic achievement and fostering a culture of inquiry. Nevertheless, the degree to which these resources are utilized may be affected by demographic characteristics such as age, gender, academic discipline, and level of study. Age could be a major influencing factor in the use of electronic resources. Results from previous research suggest that younger students tend to be the primary users of digital platforms, which may lead to increased use of online resources such as OARs

(Michikyan *et al.*, 2025; Okwu *et al.*, 2025). On the other hand, challenges arising from limited use of Information and Communication Technology may hinder older students in their use of online resources (Machimbidza & Mutula, 2020). Previous studies have also indicated that gender can influence the use of such resources. However, the findings have been mixed; some authors have found that male students use electronic resources more often than female students (Buba *et al.*, 2018; Hossain *et al.*, 2023; Vázquez-Cano *et al.*, 2017), while others have found little or no gender differences (Bamidele & Adekanmbi, 2019).

Academic discipline is another critical factor that may influence the utilization of OARs. It is probable that students from disciplines requiring up-to-date research—for example,

the sciences and social sciences-utilize open access resources more often than students from disciplines that rely more on traditional texts, such as arts-related fields (Tmava & Ryza, 2023). Thus, this variation calls for special attention to the provision of resources and training tailored to different academic disciplines.

Consequently, the manner and frequency of OAR use may increase with the level of study. Students at higher levels, especially those working on research projects and/or dissertations, are more likely to use these sources frequently (Lin & Yu, 2023). In contrast, lower-level students may not fully appreciate their value or may lack the competencies to utilize open access resources (Ikonne *et al.*, 2022).

However, this may not always be the case, as a South African study by Ruzegea and Msonde (2021) found that undergraduates used e-resources more frequently than postgraduates. Despite varied findings across age, gender, discipline, and level of study, evidence remains inconsistent, especially in Nigeria. Some international studies show that demographic factors play a role in certain contexts, while others indicate that they are not always key predictors of resource use. This contradiction reveals a gap in the literature.

There is limited understanding of how these demographic factors interact to affect OAR use among undergraduates in Nigerian institutions such as the University of Ibadan. Understanding these dynamics is crucial for developing interventions to help students access and use OARs effectively. Therefore, this study investigates how demographic characteristics affect the use of open access resources among undergraduates at the University of Ibadan.

## II. OBJECTIVES OF THE STUDY

The general objective of this study is to investigate how demographic factors affect the usage of Open Access Resources among undergraduate students at the University of Ibadan, while the specific objectives are to:

1. Describe the demographic characteristics of undergraduates at the University of Ibadan.
2. Examine the categories of Open Access Resources utilized by undergraduates for academic purposes at the University of Ibadan.
3. Establish the regularity with which undergraduates engage with Open Access Resources for academic activities at the University of Ibadan.
4. Ascertain the academic purposes for which undergraduates employ Open Access Resources at the University of Ibadan.
5. Determine the association between demographic characteristics and undergraduates' utilization of Open Access Resources for academic activities at the University of Ibadan.

## III. LITERATURE REVIEW

### A. Definition and Characteristics of OARs

Open Access (OA) is a collection of free scholarly information resources that provide access to online academic content—articles, books, and research data—without the user paying any fee. With the exception of registration on some platforms or regional access restrictions, users are allowed to access and utilize OA resources (Suber, 2012). The basic idea of open access is to eliminate economic, legal, and technological barriers in order to make knowledge available to learners and researchers across the globe (Suber, 2012). This represents a significant departure from traditional subscription-based publishing methods that restrict access to paying users or institutional subscribers. Open access materials include research articles, reports, conference papers, audio-visual lectures, and e-newspapers, and span a variety of formats such as OPACs, OA journals and magazines, OA databases, e-books, theses, websites, and institutional repositories (Ukwoma and Onyebinama, 2020; Library Guide, 2024).

Recent European studies point to the manner in which OA and associated Open Educational Resources (OER) have been incorporated into digitally augmented higher education. Papadakis *et al.* (2023, 2024) demonstrate that accessibility and pedagogical flexibility may be enhanced with the help of cloud technologies, augmented reality, and other digital innovations that facilitate more open and student-centered learning environments. Similarly, Santos-Hermosa *et al.* (2024) reported that faculty in Library and Information Science institutions in Spain, Germany, Croatia, and Bulgaria adopted OER primarily through self-driven efforts during the COVID-19 pandemic, with adoption influenced by preexisting knowledge and institutional support. Their research highlights that capacity building, collaboration, and institutional support are necessary for the effective implementation of OER after the pandemic, while students primarily appreciate the availability and accessibility of resources.

Swain and Pathak (2024) also point out that the use of OER in higher education contributes to improved teaching and research capabilities, reduced costs of educational materials, and support for students in examinations. However, issues such as weak institutional policies, financial constraints, limited technological knowledge, lack of awareness, and insufficient collaboration hinder the successful adoption of OER. Other European researchers emphasize that infrastructure, policy, and library leadership influence the adoption of OA (Micunovic *et al.*, 2023; Matijevic, 2025).

Extending this discourse to institutional contexts, Okwu, Ogunbodede, and Suleiman (2023) studied how faculty in state universities in Bayelsa and Rivers States, Nigeria, perceived OER. They found that although faculty recognized the advantages of OER, their use was hindered by insufficient institutional support, poor internet connectivity, and limited

awareness. This observation is consistent with the findings of Swain and Pathak (2024) and highlights the significant role of institutional frameworks in enabling OA and OER adoption. Similarly, Ogunbodede and Atique (2023) investigated the usability of OER platforms among students at Al Kabir Polytechnic in Jamshedpur, India, and found that while students recognized their usefulness in supporting classroom learning, they experienced challenges with platform navigation and intermittent internet connectivity. Their study highlights that even when resources are freely available, usability and connectivity remain significant determinants of effective utilization.

Moreover, OA is not limited to educational materials but also encompasses expert scholarly information. Shashidhara and Sambathkumar (2019) conducted a comparative study on the knowledge and utilization of open access resources by patrons of dental college libraries in Bangalore, Karnataka. Their results showed that although dental students and faculty had a high level of awareness of OA journals and databases, actual usage was often influenced by the availability of complementary institutional subscriptions and the level of library support. Latheef and Thiruvengada Mani (2019) also examined the use of commercial and open-source digital resources in Islamic Management Arts and Science Colleges in Tamil Nadu and found that open-source resources were widely used due to their cost-effectiveness and inclusiveness, whereas commercial resources were preferred for their perceived authority and comprehensiveness.

Collectively, these findings provide a comparative perspective on how OA and OER adoption occurs globally and underscore that, while technological affordances are important, the level of institutional support, infrastructure, and faculty participation largely influences adoption. This perspective helps situate the challenges and usage trends among undergraduates at the University of Ibadan within a broader international context.

## B. Utilization Patterns of OARs among Undergraduates

*1. Awareness and Frequency of Usage:* Research findings demonstrate that undergraduate students exhibit different understandings of open access resources, along with varying levels of usage. The literature indicates that students possess a basic understanding of open access resources, yet fail to recognize their full potential (Itasanmi *et al.*, 2019). According to Ukwoma and Onyebinama (2020), undergraduate students tend to access open access resources daily, including downloading dissertations and theses, and using e-magazines, e-journals, repositories, online databases, e-books, and library catalogues.

According to Onakoya *et al.* (2024), open access resources serve as primary tools for their respondents because they are digitally available, and daily usage among undergraduates reached 53.6% of the total respondents. Oladele and Aragbaye (2022) found that open access journals, open courseware, and free electronic books are the most easily

accessible resources in selected private universities, although undergraduates use these resources sporadically. This usage pattern aligns with the research needs of undergraduates and the types of resources available in Nigerian academia.

Academic support is the primary reason undergraduate students use open access resources, while research work constitutes their main practical use of these resources. Open access resources serve various purposes, as students use them to conduct literature reviews for assignments and projects, and to prepare for examinations (Folorunso and Ohwofasa, 2019). Students at the University of Ibadan, like others, frequently rely on open access resources as supplementary materials to their regular course content, since textbooks in their fields may be outdated or prohibitively expensive. Nigerian universities, such as the University of Ibadan Distance Learning Centre, utilize these digital resources to support their expanding online learning systems (Itasanmi *et al.*, 2019). Oguntimehin and Enamudu (2022) also revealed that undergraduates at Lead City University and the University of Ibadan use open access resources for general research, with open access journals (79.8%) and textbooks/books (80.4%) being the most widely utilized.

Emphasizing the role of institutional and environmental factors in shaping these usage patterns, Atanda and Adetimirin (2025) investigated facilitating conditions and the use of OA resources among postgraduate students of Library and Information Science in Southwest Nigeria. Their research identified infrastructure, technical support, and institutional policies as significant factors influencing the use of OA resources. Although their study focused on postgraduate learners, the findings are relevant to undergraduate usage, as they highlight that beyond individual awareness, supportive conditions—such as stable internet access, library education, and institutional investment—play a crucial role in determining the actual use of OA resources.

*2. Demographic Factors Influencing Open Access Resource Utilization:* Research shows that population statistics can forecast the selection patterns of distinct university resources within student communities. Itasanmi *et al.* (2019) established through their research that gender patterns exist in the use of OARs. The results show that women tend to use open access resources in line with their demographic patterns, but gender alone did not influence awareness levels. The study conducted by Akano (2017) at two private universities in southwestern Nigeria revealed that demographic variables had a combined effect on undergraduate library software utilization ( $r^2 = 0.035$ ,  $p < 0.05$ ), with gender accounting for  $r^2 = 0.140$  ( $p < 0.05$ ) of the relationship. The research shows that age serves as a vital indicator of student awareness of open access resources, but existing studies do not confirm its impact on actual resource utilization (Itasanmi *et al.*, 2019). Ajuwon and Popoola (2014) established that the utilization of web-based health information resources by their respondents depended on three demographic factors: gender ( $B = -2.027$ ), designation ( $B = -0.343$ ), and educational qualification ( $B = 2.411$ ).

#### IV. METHODOLOGY

This study adopted a descriptive survey research design. The study population (14,354) comprises undergraduate students from 14 faculties at the University of Ibadan. A two-stage random sampling technique was used. In the first stage, 30% of the 14 faculties were selected at random using the balloting method. In the second stage, 5% of each faculty's population was selected. The total sample for this study was 261.

A structured, closed-ended questionnaire was the main data collection instrument; it solicited responses on demographic data, awareness of OARs, frequency of use, and purpose of use. The instrument was validated by a Library and Information Science expert, and a pilot test was conducted to determine reliability, yielding a Cronbach's alpha coefficient of  $\alpha = .89$ . Data were analyzed using frequencies, mean, standard deviation, and Pearson's Product Moment Correlation (PPMC) at a 95% confidence level and a 0.05 level of significance. The Statistical Product and Service Solutions (SPSS), version 23.0, was the software used to analyze the data.

Ethical approval (IRB) for this study was obtained from the Office of the Head of Department, Library, Archival and Information Studies, University of Ibadan. A letter of introduction was written to the participating faculties, outlining the study objectives. Informed consent was secured verbally from the participating students, as the questionnaire was a physical copy distributed across the different faculty premises.

#### V. RESULTS

Table I describes the demographic characteristics of undergraduate students. The table reveals that the highest number of participants were from the Faculty of Education (38.5%), while 26.1% were from Social Science, which had the fewest participants; 58.8% of the respondents were female, while 41.2% were male; the majority (97.3%) of the respondents were single, while 0.8% were divorced; the majority of the respondents were in the age range of 16–20 years (54.9%), while only 0.4% were 31 years and above; finally, the majority of the respondents were 200-level students (36.6%), while only 0.4% were 500-level students.

TABLE I DESCRIPTION OF DEMOGRAPHIC FACTORS OF UNDERGRADUATES

	Variable	Frequency	Percentage
Faculty	Arts	91	35.4%
	Social Science	67	26.1%
	Education	99	38.5%
Gender	Male	106	41.2%
	Female	151	58.8%
Marital Status	Single	250	97.3%
	Married	5	1.9%
	Divorced	2	0.8%
Age	16-20yrs	141	54.9%
	21-25yrs	101	39.3%
	26-30yrs	14	5.4%
	31 yrs and above	1	0.4%
Level	100	73	28.4%
	200	94	36.6%
	300	40	15.6%
	400	46	17.9%
	500	1	0.4%
	600	3	1.2%
			N= 257

Table II presents the types of Open Access Resources (OARs) used by undergraduates at the University of Ibadan. The most commonly used resource is free electronic books, with 79.8% of students indicating that they use them; the mean is 1.80, indicating high adoption. The use of open access journals and

image portals is also very prevalent, with 65.8% and 61.1% of students using them, respectively. Open access databases are moderately used, with slightly more than half of the students (51.0%) utilizing them.

TABLE II CATEGORIES OF OARS UNDERGRADUATES USE FOR ACADEMIC ACTIVITIES

S.No.	Items	Used	Not used	Mean	Std. Dev.
1	Open Access journals	169 (65.8%)	68 (34.2%)	1.66	0.475
2	Open courseware	102 (39.7%)	155 (60.3%)	1.40	0.490
3	Free electronic books	205 (79.8%)	52 (20.2%)	1.80	0.403
4	Open access image portals	157 (61.1%)	100 (38.9%)	1.61	0.488
5	Open access databases	131 (51.0%)	126 (49.0%)	1.51	0.501
6	Open access repositories	103 (40.1%)	154 (59.9%)	1.40	0.491
Decision mean = 1.50					

By comparison, open courseware and open access repositories are the least utilized, with means of 1.40 and usage levels below 41%, indicating that they are not well known. Overall, the decision mean of 1.50 indicates that students tend to prefer certain OARs, especially electronic

books and journals, while the remaining resources are underutilized. This trend suggests that more training and promotion are required to increase the use of less popular OARs.

TABLE III FREQUENCY AND PERCENTAGE OF HOW OFTEN THE UNDERGRADUATES USE OPEN ACCESS RESOURCES FOR ACADEMIC ACTIVITIES

S.No.	Statement	Daily	Twice a week	Weekly	Monthly	Never	Mean ( $\bar{x}$ )	Std. Dev
1	Open Access journals	52 (20.2%)	56 (21.8%)	71 (27.6%)	37 (14.4%)	41 (16.0%)	3.16	1.338
2	Open courseware	17 (6.6%)	49 (19.1%)	59 (22.6%)	43 (16.7%)	90 (35.0%)	2.46	1.317
3	Free electronic books	57 (22.2%)	63 (24.5%)	73 (28.4%)	38 (14.8%)	26 (10.1%)	3.34	1.256
4	Open access image portals	26 (10.1%)	62 (24.1%)	61 (23.7%)	50 (19.5%)	58 (22.6%)	2.80	1.307
5	Open access databases	27 (10.7%)	55 (21.4%)	53 (20.6%)	42 (16.3%)	80 (31.1%)	2.64	1.385
6	Open access repositories	18 (7.0%)	50 (19.5%)	48 (18.7%)	46 (17.9%)	95 (37.0%)	2.42	1.341
Decision mean = 3.00								

Table III presents the frequency of usage of the various OARs by undergraduate students at the University of Ibadan. The most frequently used resource is free electronic books; 22.2% use these books on a daily basis, and the mean of 3.34 indicates regular use. There is also high usage of open access journals, with 20.2% using them daily and a mean of 3.16. Open access image portals and databases are used moderately, with mean scores of 2.80 and 2.64, respectively, indicating infrequent usage.

Open courseware and open access repositories, in turn, are the least used, with most students reporting that they never use them (35.0% and 37.0%), and mean scores below 2.5, indicating limited engagement. In general, e-books and journals dominate frequent OAR usage, whereas other resources are used less frequently and should be more actively promoted, integrated into the learning process, and supported through user education.

Findings in Table IV indicate why undergraduates at the University of Ibadan use OARs. Overall, the average scores are higher than the decision mean of 2.50, which indicates a general consensus that OARs are actively utilized for various academic purposes. OARs are most commonly used for classwork and assignments (mean = 3.27), learning challenging subjects (3.18), and research work (3.19), indicating that they support core academic activities. They are also used for practical exercises (3.16), exam preparation (3.14), and updating knowledge or supporting reading (3.21), suggesting an active role in lifelong learning.

However, the mean scores are lower for comparing class notes from other institutions (2.83) and comparing topics taught in class (2.97), indicating that they are not as frequently used for comparative purposes. In general, the use of OARs among students is primarily aimed at facilitating learning, research, and knowledge enhancement, while their use for comparison or as supplementary material is less significant.

TABLE IV MEAN AND STANDARD DEVIATION OF WHY UNDERGRADUATES USE OPEN ACCESS RESOURCES

S.No.	Statement	SA	A	D	SD	Mean ( $\bar{x}$ )	Std.Dev
1	I use OAR for classwork/ assignment	96 (37.4%)	140 (54.5%)	15 (5.8%)	6 (2.3%)	3.27	0.675
2	I use OAR for group/individual practical	79 (30.7%)	145 (56.4%)	27 (10.5%)	6 (2.3%)	3.16	0.695
3	I use OAR for a personal tutorial	72 (28.0%)	141 (54.9%)	35 (13.6%)	9 (3.5%)	3.07	0.744
4	OAR is used for examination preparation	82 (31.9%)	137 (53.3%)	31 (12.1%)	7 (2.7%)	3.14	0.728
5	I use OAR to learn challenging subjects	96 (37.4%)	119 (46.3%)	35 (13.6%)	7 (2.7%)	3.18	0.766
6	I use OAR to update my knowledge and supplement my reading	93 (36.2%)	134 (52.1%)	21 (8.2%)	9 (3.5%)	3.21	0.736
7	I use OAR as they are free	89 (34.6%)	110 (42.8%)	49 (19.1%)	9 (3.5%)	3.09	0.820
8	I use OAR to compare topics taught in class	62 (24.1%)	139 (54.1%)	42 (16.3%)	14 (5.4%)	2.97	0.790
9	I use OAR to compare class notes of difficult institutions	68 (26.5%)	97 (37.3%)	73 (28.4%)	19 (7.4%)	2.83	0.905
10	I use OAR for my research work	102 (39.7%)	118 (45.9%)	22 (8.6%)	15 (5.8%)	3.19	0.825
Decision mean = 2.50							

TABLE V CORRELATIONAL MATRIX OF DEMOGRAPHIC FACTORS (FACULTY, GENDER, AGE AND LEVEL) AND USE OF OAR

S.No.	Factors	Faculty	Gender	Age	Level	Use of OAR
1	Faculty	-	-	-	-	-
2	Gender	0.01	-	-	-	-
3	Age	.219**	-0.08	-	-	-
4	Level	.242**	-0.09	.520**	-	-
5	Use of OAR	-0.12	-0.03	0.07	0.10	-

\*\*Correlation Is significant at the 0.01 level (2-tailed).

Table V presents the correlations between demographic variables (faculty, gender, age, and level of study) and the use of OARs. The correlations between these demographic factors and OAR use are very low: faculty ( $r = -0.12$ ), gender ( $r = -0.03$ ), age ( $r = 0.07$ ), and level of study ( $r = 0.10$ ). These values indicate that there are no significant correlations, implying that OAR use among undergraduate students at the University of Ibadan is not strongly dependent on their faculty, gender, age, or level of study.

In other words, demographic characteristics do not appear to play a significant role in the use or non-use of OARs among undergraduates. This result suggests that interventions to enhance OAR usage should focus on factors beyond demographic variations, such as training, awareness, or access to resources.

## VI. DISCUSSION

The findings of this study reveal that open access journals, free electronic books, open access image portals, and open access databases were mostly used by undergraduates for academic activities. This follows a trend identified by Oladele and Aragbaye (2022), Oguntimehin and Enamudu (2022), and Ukwoma and Onyebinama (2020), whose studies

showed that undergraduate students use open access journals, free electronic books, and open courseware for their academic activities. This raises a concern regarding the awareness and usage of other open access resources, such as open access databases.

This study also found that University of Ibadan undergraduates mainly used OARs for classwork and assignments, to update knowledge and supplement personal reading, for research work, to learn challenging subjects, and for group work and practical activities. This aligns partially with the findings of Folorunso and Ohwofasa (2019) and Oguntimehin and Enamudu (2022), who stated that open access resources serve various purposes, including supporting literature reviews for assignments and projects, as well as preparation for examinations.

This study's finding-that there is no significant relationship between demographic factors (age, gender, level of study, and faculty) and the use of OARs-both supports and contradicts existing literature. For example, the findings diverge from those of Tmava and Ryza (2023), who found that academic discipline is a significant predictor of electronic resource use, especially among research-intensive students. Similarly, the conclusion that gender does not affect OAR use contradicts

studies by Buba *et al.* (2018), Hossain *et al.* (2023), and Vázquez-Cano *et al.* (2017), which found that digital resource use is more common among male students. Nonetheless, the study is consistent with research indicating only minor differences in the use of e-resources between genders (Itasanmi *et al.*, 2019; Bamidele and Adekanmbi, 2019). Another contrast can be observed with the findings of Ruzegea and Msonde (2021), who reported that undergraduates used e-resources more than postgraduates in their study in South Africa; however, the correlations in this study did not show any significant influence of the level of study. Overall, these convergences and divergences suggest that demographic factors in OAR use are context-specific rather than universal. The implication for policy and practice is that universities should focus on other factors that may influence the use of OARs.

## VII. CONCLUSION

This study has examined how undergraduates at the University of Ibadan use open access resources, particularly for their academic activities, and how demographic factors such as age, level of study, and gender play roles in their usage of these resources. The findings show an increased use of OARs among undergraduates, signaling a positive shift toward leveraging digital resources for academic enhancement, as they are utilized for various academic purposes. The role of demographic factors is also highlighted, as they were found to have no correlation with OAR use. This may imply that the use of OARs is influenced by other factors such as training, facilitating conditions, or digital literacy. Therefore, it is crucial for the university, particularly the university library, to further promote these resources and enhance access to them through academic support systems that not only support students' academic activities but also foster a culture of continuous learning and research. Additionally, targeted strategies to engage students across various levels and age groups can help bridge any gaps in usage patterns and ensure equitable access to these valuable resources. It is therefore imperative that the university address the diverse needs and challenges faced by students to ensure **balanced** information provision and foster academic success across all faculties.

## VIII. RECOMMENDATIONS

Based on the findings, discussions, and conclusions drawn from this research work, the following recommendations are suggested:

1. The university should promote the use of open access databases, open access repositories, and open courseware, as these were identified as the least-used OARs. This can be achieved by providing easy access to these resources and conducting awareness campaigns to inform students and faculty about their availability and benefits.
2. University lecturers should encourage undergraduates to increase their utilization of OARs by frequently assigning tasks and projects that require the use of these resources,

since students recognize the value of using OARs for their assignments and classwork. This approach will enhance their familiarity with and reliance on these tools, ultimately improving their use of OARs for research and academic purposes.

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