

# Usability of Open Educational Resources among Students of Al Kabir Polytechnic, Jamshedpur, India: A Case Study

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## Research Article

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# Abstract

The purpose of this study is to determine the extent to which Al Kabir Polytechnic students in Jamshedpur, India, find Open Educational Resources (OER) useful. The investigation was directed by four research questions and a hypothesis. A descriptive survey was used by the researchers. A total of 1000 students from Al Kabir Polytechnic were included in the study. The sample size, which is 300 students, represents 30% of the overall population. The study's sample size was determined using the Taro Yamane sample size formula. For data gathering, a questionnaire was used. Educational technology professionals helped to validate the questionnaire. Cronbach Alpha was used to determine the instrument's reliability, and the result was 0.98. The mean and standard deviation were calculated using Statistical Product and Service Solutions (SPSS) version 23, and Pearson's product-moment correlation coefficient was used to test the hypothesis at 0.05 significant levels. The students had a high level of awareness and the use of OER. Students had a high level of usage of OER, according to the survey. It was also shown that a lack of digital literacy abilities was the most significant barrier to effective OER use. Finally, the hypothesis test reveals that there is a substantial link between student awareness and the use of OER. The positive link implied that students' awareness of OER had a favorable impact on their use in the study. The researchers proposed that the school administration and library management provide training on digital literacy skills for students to effectively use these resources based on the findings. Again, librarians and lecturers should continue to promote OER use among students to sustain its use.

# Introduction

The introduction of Internet technology in the educational system has provided students with new chances to overcome the restrictions of printed materials in terms of time and location. The Internet has made education accessible to everyone, allowing knowledge to be shared, re-shared, and used and re-used. Open Educational Resources (OER) are taking the center stage around the world as higher institutions place a greater emphasis on accessibility and quality education. In 2001, the Massachusetts Institute of Technology (MIT) made all of its courses available on the Internet for free. As the number of institutions offering free or Open CourseWare (OCW) rose, UNESCO held the inaugural Global OER Forum in 2002 and the term "OER" was coined. The forum stressed the importance of OER in increasing access to education, particularly in developing nations (Plotkin, 2010). As a result, many institutions and organizations around the world have begun to provide open access to their courseware (Vladoiu & Constantinescu, 2011). Today, OER has become a significant choice for increasing global access to high-quality educational content (Ofogebu et al., 2021), by making high-quality courses and materials freely available online.

OER is defined in several ways, but the fact that the resources are freely obtainable on the Internet at no cost or the lowest minimum to users remains crucial in all definitions. OER, according to the researchers, are educational resources that are freely available to the public on the Internet and can be utilized, shared, and built upon. Bissell (2009) defined OER as digitized materials that instructors, scholars, and self-learners can use and reuse for teaching, learning, and research. OER represents a diverse collection of

online items in the public domain and/or publicly available (Atkins et al., 2007). OER includes courseware, lecture notes, textbooks, lecture videos, tests, assignments, software, project reports, conference reports, journal articles, technical papers, and any additional methods, materials, or approaches for facilitating knowledge access (William & Flora Hewlett Foundation, 2008). OER uses an open license that enables the reuse and adaptation of materials without first requesting and gaining permission from the creator (Butcher, 2015). For students, OER (i) provides unrestricted access to global content that can be localized, (ii) expands their learning resource options, and (iii) fosters inclusive learning communities (Butcher, 2011).

OER is a concept that intends to bridge the educational gap by making high-quality learning resources available for free. OER can be utilized to improve higher education quality and give more people the opportunity to get higher education at a lower cost (Kumar & Raja, 2019). Since its inception, OER has grown in popularity and become a significant means of increasing access and improving, the teaching and learning experience for both lecturers and students (Zaid & Alabi, 2020). The usage of OER in higher education has been shown to lead to more innovative teaching and learning approaches as well as improved learner results (Colvard et al., 2018). OER promotes student engagement and directly improves their learning experience by making learning more appealing to them (Itasanmi, 2020). OER is a dream come true for students since it has enabled access to repositories of numerous institutions of learning both locally and worldwide for poor pupils. OER can break down demographic, economic, and geographic educational barriers while also promoting life-long learning and personalized learning around the world. In comparison to more traditional, proprietary publisher materials, the expansion and use of OER have opened up a slew of educational options.

Several OER initiatives have been created in India throughout the years as a possible response to critical educational concerns. Equal access to education, a scarcity of high-quality teachers, insufficient infrastructure, a lack of well-equipped libraries, and a shortage of good-quality learning resources are among the obstacles (Kumar, 2009). To address these issues, India's Prime Minister formed the National Knowledge Commission (NKC) in 2005 to foster quality in the educational system to face the knowledge challenges of the twenty-first century. According to the NKC report, improving the quality of education and expanding access to it is critical to our success in the knowledge economy. To accomplish this, the NKC suggested that excellent Open Access (OA) materials and Open Educational Resources (OER) be developed and disseminated via broadband Internet connectivity (NKC, 2007). The goal was for Indian institutions to generate, adapt, and use OER. This resulted in the foundation of the National Repository of Open Educational Resources (NROER) in 2013 and the sponsorship of many OER initiatives by the government and external funding bodies (James & Bossu, 2014). With a huge number of open-access journals, open-access repositories, and open-source software-based digital repositories, India is now a major player in the open-access movement (Raysh, 2017). Some open-access efforts have made significant contributions to the creation, use, and expansion of OER in India.

Despite OER's growing popularity, benefits, and ability to contribute to developing countries' educational advancement, the extant literature on OER trends and usage in Indian higher education suggests that OER

is still in its infancy and is not fully utilized (Padhi, 2018). The ineffective use of OER could be because many of the OER platforms are inaccessible to students. Usability refers to how easy it is for people to use systems successfully and without encountering any obstacles (Nielsen, 1993). OER usability is a means to gauge how successfully and how quickly users can execute tasks on OER platforms. It refers to how consumers perceive OER websites throughout user interactions, based on how well they complete tasks on the website and even their emotional attachment to it. OER usability enhances both users' experiences with and without impairments when navigating websites. The website must adhere to the Nielsen model's five usability criteria to improve OER usability. The adoption and success of OER platforms depend on their usability. The user interface for the OER website must be simple and easy to use for both experienced and inexperienced users so that they can easily use it and meet their needs. Users are only satisfied when they can fulfill their objectives in a timely and efficient manner (Dillon, 1994). By guaranteeing the usability of these resources, the teacher and students will be able to use them efficiently and effectively (Odiel et al., 2021).

However, the usability of OER can still be improved. OER usability encompasses all aspects, including navigation and user interface. Research has revealed that one of the key variables affecting students' learning efficacy is the inadequate usability of an online platform (Raspopovic et al., 2014). Researchers have discovered that the majority of OER systems have usability issues. The majority of OER platforms lack collaborative and communication features (Gillani & Eynon, 2014). Usability affects user motivation and establishes the success rate. It has an impact on satisfaction, which has an impact on usage intention. Because of the rapid expansion of online learning brought on by the COVID-19 epidemic, which has resulted in the adoption of more open educational resources than ever before, the usability evaluation of OER platforms is essential and important in this environment (Schaffhauser, 2020). To minimize unnecessary cognitive strain and enhance their potential educational value, OER materials' usability must be improved. Consequently, there are limited studies conducted by researchers to investigate the usability of OER platforms in Indian higher education, especially by the students, despite the massive investment in OER. To bridge the research gaps and to investigate the perception of Indian students about the usability of OER platforms, the Nielsen (1993) usability model is used in this study. This study intends to fill a research vacuum by looking into student knowledge, usage, usability, and problems in the use of OER at Al Kabir Polytechnic in Jamshedpur, India. It is on this note, therefore, that the study examined the usability of OER among students of Al Kabir Polytechnic, Jamshedpur, India.

## **Statement of the Problem**

OER's major purpose is to reduce the cost of education by offering free access to high-quality educational resources and to make education more accessible to anybody who wants to study. These resources are available for free on the internet and can be used for teaching, learning, and research purposes. Students, according to Agyekum & Ossom (2015), continue to struggle with using online learning and research platforms to address and respond to their research demands. This could be due to a lack of user-friendliness of the platforms. According to Nielsen (2000), visitors will not utilize a site if it is difficult to obtain its material. As a result, the accessibility of OER platforms is one of the most important criteria in

determining whether or not a system will be adopted by users. The usability of OER platforms is critical in encouraging people to use them. The researchers noted that there are currently insufficient empirical studies on the usability of OER in India, which the current study attempts to fill. Based on this, the researchers examined the usability of OER among students of Al Kabir Polytechnic, Jamshedpur, India.

## **Objectives of the Study**

The main objective of this study is to examine the usability of OER among Students of Al Kabir Polytechnic, Jamshedpur, India. The specific objectives are:

- To determine the student's level of awareness of OER
- To ascertain the student's level of usage of OER
- To find the extent of usability of OER
- To identify the challenges in the use of OER

## **Research Questions**

- What is the student's level of awareness of OER?
- What is the student's level of usage of OER?
- What is the extent of usability of OER?
- What are the challenges in the use of OER?

## **Hypothesis**

The study was guided by the null hypothesis

- There is no significant relationship between awareness and use of OER by students of Al Kabir Polytechnic, Jamshedpur, India.

## **Literature Review**

Few studies have been conducted to examine the usability of OER. This section provides an overview of some of these investigations.

At the Faculty of Medicine, University of Kelaniya, Sri Lanka, Hettige et al. (2022) investigated student use of OER. At the University of Kelaniya's Faculty of Medicine, a cross-sectional study was done. 257 students from the first to the last year were chosen using stratified random sampling. Data was collected using a self-administered questionnaire. The majority of the students used OER, according to the findings. The accessibility of OER was primarily motivated by the availability of information at any time

and the simplicity with which it could be accessed. The study resolved that training in literacy skills should be organized to increase medical students' information literacy.

Nagaiah & Thanuskodi (2021) investigated the use of OER by college students at Alagappa University in India. The study's participants were Alagappa University, college students. The online questionnaire was emailed to 245 students via WhatsApp and Gmail, and 121 students responded. The data revealed that most students are aware of OER and use them for educational reasons. Student-related factors, content-related factors, Internet-related factors, and environmental factors all pose problems in the use of OER. Padh (2018) examined the adoption and usability of OER in Indian higher education. The Unified Theory of Acceptance and Use of Technology model was used in the research. An online questionnaire was used to collect data. A total of 202 replies were received from 800 professors from 22 universities across India, representing 26.43 percent of the population. The data were analyzed using the Statistical Packages for Social Science (SPSS) version 20. The findings show that university teachers are well-versed in the notion of OER, but are unsure about their application in teaching and learning. Most of them have not used OER in their classrooms but are willing to distribute their courses as OER. According to the correlation study, three variables, namely performance expectancy, effort expectancy, and facilitating conditions, are substantially loaded to utilize OER, as well as social influence. Lack of resources and supporting conditions, as well as a lack of expertise on how to use and integrate OER into their courses, are all problems in the usage of OER. They are also uncertain whether or not they will receive assistance from their university for using OER.

The usability of digital instructional tools was studied by Odiel et al. in their multidisciplinary examination of two systematic studies published in 2021. This study's goal is to analyze empirical studies to see if there is any convergence between educational and computational research about how well digital educational resources are used. The PRISMA procedure was utilized to conduct two systematic reviews and provide answers to the two scientific questions to achieve the goal. The findings demonstrate that there are few instances where the criteria for evaluating usability as established by software engineering, the techniques and computational models to assess usability, and the criteria established in pedagogical usability are all successfully integrated. These flaws have led to the proposal of a paradigm for assessing the usefulness of digital educational resources as future work. It ends by highlighting the value of interdisciplinary integration in evaluating the usability of digital learning tools.

A study on the adoption and usability of OER in Indian higher education was done by Padhi (2018). The study's findings show that university professors are well-versed in the idea of open educational resources. However, they are not yet certain how OER will be used in classroom instruction. The majority of them are willing to distribute their courses as OER even though they haven't used OER in teaching. Lack of supporting environment and favorable societal effect on the use of OER provide obstacles for them. Additionally, it is believed that adequate policy should be in place, and that governing organizations and policymakers should set standards. To fully utilize OER, appropriate infrastructure and training should be offered.

Isbandiputra et al. (2016) used a variety of methodologies to assess the usability evaluation of open educational resources in Indonesia. To provide the best user experience for its users, this research intends to build I-OER employing interaction design concepts. The results show that I-OER complies with the eight golden rules of interface design and the five usability criteria. Despite some participants not finishing some tasks, participants were able to complete the assignment in a reasonable amount of time. Participants also agreed that I-OER is an intriguing and cool concept, but that the website navigation needs to be improved.

The study by Hu et al. (2015) looked at Chinese college students' OER usage and perceived impediments to OER diffusion. The data was gathered at Zhejiang University during the 2012–2013 academic year. A total of 1239 students were polled using a two-part survey instrument. The findings demonstrate that most university students have used open educational resources (OER), however, there are problems linked to student, content, interface, and environment variables that have slowed the coverage of OER. The study emphasized the significance of universities and faculty members in spreading the concept and practice of OER and suggested OER-related efforts for faculty and college students to encourage OER adoption.

In the African context, Oppong et al. (2022) evaluated user knowledge and use of research assistance platforms among undergraduates at Kumasi Technical University in Ghana. A total of 126 people were chosen at random. A questionnaire was used to collect data via a descriptive survey technique. The data were analyzed using percentages, SPSS, and Excel 2016. The findings show that most of the students were unaware of the university library's online library research help platforms. They were unable to identify the online library research help platforms they had lately utilized in the university library or elsewhere. They also did not use the research platforms regularly, which was uninspiring. It was also shown that undergraduate students found the research platforms difficult to use. Some respondents, on the other hand, were pleased with the research platforms and thought they were user-friendly. According to the survey, the University library should think about innovative approaches to raise awareness to entice a new generation of students to the library. Introduce multimedia technology that will allow students to engage, and construct a large number of open places with Internet cables so that other technological equipment and gadgets can be connected.

Wiche & Ogunbodede (2021) studied awareness and use of OER by library and information science students at the Ignatius Ajuru University of Education in Rivers State, Nigeria. The study used a descriptive survey design. A total of 248 undergraduate students were included in the study. The questionnaire was used to gather information. Descriptive statistics such as frequency counts and simple percentages were used to analyze the data. The findings demonstrated that students have a high degree of awareness of OER and a high level of use of various forms of OER. Inadequate information literacy skills, insufficient electrical supply, bad internet access, lack of library sensitization, and lack of support from lecturers on the usage of OER were all identified as some of the barriers to effective OER use. Based on their findings, the researchers suggested that school administration organize digital literacy skills training for students, enhance energy supply, and provide appropriate internet facilities so that students

may fully utilize quality OER freely available on the Internet. Academic libraries and instructors should also play a role in encouraging students to adopt OER.

Ismail et al. (2019) studied OER awareness among students at Tanzania's State University of Zanzibar. The study's population included 713 undergraduate students, of whom 352 were chosen at random. The data was evaluated after an internet questionnaire survey was used. The findings revealed a significant knowledge gap in OER and a variety of structural and contextual hurdles. The study also found that more than 40% of students are unaware of OER offers and that OER usage at universities is low. However, because many students have mobile devices and use the Internet for education, there is room for OER to flourish. The majority of participants mentioned restricted access, low connectivity, and affordability as major roadblocks to greater OER adoption. There were also worries about SUZA's poor ICT infrastructure and the need to improve academics' OER integration capacity. According to the report, the institution should invest in OER to enhance the use of OER in higher education.

Khaoula et al. (2019) researched to assess the usability of a Moroccan university's research management web platform. The study used the Nielsen Attributes of Usability (NAU) questionnaire to conduct a usability test. This study took place from January to March 2018 and included questions from the Nielsen Model Standard's five usability areas. The questionnaire was for teacher-researchers (platform users) at Abdelmalek Essaadi University. The findings revealed that the platform has a high level of usability and that this affects the user's adoption of the platform. The report proposed that Moroccan universities establish distance learning to train teacher-researchers, structural managers, and administrative employees.

Onaifo (2016) investigated the use of open educational resources (OER) by students at the University of Lagos in Nigeria. A mixed-methods study design was used, which included two data collection methods (surveys and interviews) as well as two analysis methods (grounded theory and principal component analysis (PCA)). The surveys were completed by 417 people, and 20 people were interviewed. The results show that, while individuals used OER often, their overall knowledge of the resources was limited. Participants' knowledge of the notion of OER and OER repositories was very inadequate. Participants had a positive view of OER in general, and they profited from using the materials in a variety of ways, according to the findings. When it came to using the resources, the participants faced several obstacles, including the expensive cost of an Internet connection. A model of OER utilization was created based on the findings. Finally, the study recommended that instructors encourage their students to utilize the different open educational resources (OER) that are available to them.

However, some of the reviewed studies are similar to this present study because some of the studies examined OER, usage, usability, and the challenges in the use of OER among undergraduate students. Most of the reviewed studies also used the descriptive survey design and the questionnaire method of data collection which is also in line with my study. However, the researcher identified some aspects of these studies that were different from this present study. For instance, none of the studies proved statistically the relationship that exists between awareness and use of OER. Furthermore, only a few



studies have been conducted on the usability of OER platforms in India. This creates a gap that my study intends to fill. This study intends to fill this gap as it will prove statistically the relationship that exists between awareness and use of OER and also bridge the research gap on the usability of OER among students in a private polytechnic in India.

## Usability Model

The Nielsen (1993) usability model is used in this study to investigate the usability of Open Educational Resources among Al Kabir Polytechnic students in Jamshedpur, India. Learnability (the system is simple and easy to perform tasks), efficiency (the system is efficient and saves users time), memorability (the system is easy to recall), mistakes (the system has a low error rate), and satisfaction are the five criteria related with usability according to Nielsen (users are likely to use it and are satisfied with the system). Because the structure of quality features is stated more systematically and the site of use is specified, Nielsen's model is preferable to Shackel and Richardson's (Kurosu, 2015).

Here is a map of the five usability attributes of the Nielsen model in the test method used in this research (Fig.1):

## Methodology

A descriptive survey design was used in this investigation. A total of 1000 students from Al-Kabir Polytechnic in India comprised the population of the study. 300 students were chosen using a simple random sampling procedure, representing 30% of the overall population. The study's sample size was determined using the Taro Yamane sample size formula. The instrument used to collect data was a questionnaire. Experts in educational technology evaluated the questionnaire. One of the researchers administered the instrument to the respondents. The study's data were reviewed to see whether there was any internal consistency of reliability, and a Cronbach alpha value of 0.98 was found. The questionnaire was deemed credible based on the coefficient obtained. The response to each of the items was weighted on a 4-points Likert-type scoring scale. The respondents were free to choose Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point. From the scale, a criterion score of 2.5 was adopted. The criterion score was obtained as follows:

Criterion score =  $((4+3+2+1))/4 = 2.5$ . For research questions 1 and 2, items having a mean score above the criterion score of 2.5 were considered high-level awareness and usage while those below 2.5 were considered poor-level awareness and usage. Similarly, for research question 3, items having a mean score above the criterion score of 2.5 were considered 'high extent of usability,' while those below 2.5 were considered 'poor extent of usability.' Finally, items having a mean score above the criterion score of 2.5 were accepted while those below 2.5 were not accepted.' Data were evaluated using descriptive statistics such as frequency counts, sample percentages, and mean, while Pearson's product-moment correlation coefficient was used to test the hypothesis. The findings are shown in the table below.

# Results

The findings of the study are presented in the following tables with explanations

## Demographic Characteristics of Respondents

Table 1  
Gender of the Respondents

Gender	Frequency	Percentage (%)
Male	233	78
Female	67	22
<b>Total</b>	<b>300</b>	<b>100</b>

Table 1 shows that 233(78%) of the students were male while 67(22%) were female. This implies that the majority of the students under study were male.

## Answering Research Questions

This section discusses the findings of this study based on the research questions raised. The results are presented in Tables 2–5.

### Research Question 1: What is your level of awareness of open educational resources?

Table 2  
Student's Level of Awareness

S/N	Awareness of OER	SA	A	D	SD	Mean	S.D.	Remark
1.	I am aware of open educational resources	162	122	15	01	3.5	0.61	High-Level Awareness
2.	I am aware that OER provides quality free materials for learning and research	157	124	16	03	3.5	0.64	High-Level Awareness
3.	I am aware that open educational resources are in online/electronic format	172	116	11	01	3.5	0.58	High-Level Awareness
4.	I am aware that open educational resources are readily available for teaching, learning, and research	150	134	15	01	3.4	0.61	High-Level Awareness
5.	I am aware that anyone can legally and freely copy, adapt and re-share OER	132	142	20	06	3.3	0.69	High-Level Awareness
<b>Grand Mean</b>						<b>3.4</b>	<b>0.63</b>	

Table 2 shows the student's level of awareness of OER. All the items in Table 2 have mean values that are above the criterion mean of (2.5), more so, the grand mean (3.4) is greater than the criterion mean (2.5), which shows that the students have a high level of awareness of OER.

## Research Question 2: What is your level of open educational resource usage?

Table 3  
Students' Level of OER Usage

S/N	Usage of OER	SA	A	D	SD	Mean	S.D.	Remark
1.	I make use of OER to supplement my learning	169	108	15	08	3.5	0.71	High-Level Usage
2.	I use OER to get access to quality materials	152	128	12	08	3.4	0.69	High-Level Usage
3.	I use OER to increase my research productivity	151	122	20	07	3.4	0.71	High-Level Usage
4.	I use OER as an alternative to expensive commercial print textbooks	166	119	10	05	3.4	0.64	High-Level Usage
5.	I use OER to prepare for my tests and examinations	142	119	22	17	3.3	0.82	High-Level Usage
6.	I use OER to learn from other learned scholars	105	84	77	34	2.9	1.0	High-Level Usage
<b>Grand Mean</b>						<b>3.3</b>	<b>0.76</b>	

Table 3 reveals the student's level of OER usage. All the items in Table 3 have mean values that are above the criterion mean of (2.5), more so, the grand mean (3.3) is greater than the criterion mean (2.5), which shows that the students have a high-level of usage of OER.

## Research Question 3: What is the extent of usability of open educational resources?

Table 4  
Students' Extent of Usability of OER

S/N	Usability of OER	SA	A	D	SD	Mean	S.D.	Remark
1.	I can easily access and use OER materials	156	117	20	07	3.4	0.71	High Extent of Usability
2.	OER materials are clear and understandable	149	123	17	11	3.4	0.76	High Extent of Usability
3.	I can easily use and integrate OER into my courses	119	156	20	05	3.3	0.66	High Extent of Usability
4.	It is very easy to find relevant OER materials in my course of study	125	158	10	07	3.3	0.65	High Extent of Usability
5.	OER is easy to learn	143	123	17	17	3.3	0.81	High Extent of Usability
6.	I feel comfortable and satisfied using OER	132	142	20	06	3.3	0.69	High Extent of Usability
7.	OER is easy to use and remember	136	116	28	20	3.2	0.84	High Extent of Usability
8.	Interaction with OER is clear	84	146	55	15	2.9	0.81	High Extent of Usability
<b>Grand Mean</b>						<b>3.3</b>	<b>0.75</b>	

Table 4 shows the student's extent of usability of OER. All the items in Table 4 have mean values that are above the criterion mean of (2.5), more so, the grand mean (3.3) is greater than the criterion mean (2.5), which shows that the students have a high extent of usability of OER.

**Research Question 4: What are the challenges in the use of open educational resources?**

Table 5  
Challenges in the Use of OER

S/N	Challenges in the Use of OER	SA	A	D	SD	Mean	S.D.	Remark
1.	Lack of digital literacy skills	78	156	50	16	2.9	0.80	Agree
2.	Lack of awareness of Intellectual Property Right Issues	17	35	182	66	2.0	0.75	Not Agree
3.	Lack of library/lecturers sensitization on the use of OER	19	22	182	77	1.9	0.76	Not Agree
4.	Lack of awareness of the availability of OER	20	19	152	109	1.8	0.81	Not Agree
5.	Lack of resources/technology to access the Internet	13	11	195	81	1.8	0.67	Not Agree
6.	Poor Internet connectivity	13	15	192	80	1.8	0.68	Not Agree
7.	Lack of relevant OER materials in my course of study	11	10	158	121	1.7	0.69	Not Agree
8.	Inconsistent power supply	08	11	189	92	1.7	0.63	Not Agree
<b>Grand Mean</b>						<b>1.9</b>	<b>0.72</b>	

Table 5 reveals the challenges in the use of OER by the students. Items 2–8 have mean values that are lesser than the criterion mean of (2.5), more so, the grand mean (1.9) is lesser than the criterion mean (2.5), except for item 1 which has a mean value that is above the criterion mean of (2.5). This shows that item 1 which is the lack of digital literacy skills is the only challenge hindering the effective use of OER in this study.

### Hypothesis

There is no significant relationship between awareness and use of OER by students of Al Kabir Polytechnic, Jamshedpur, India.

Table 6  
Relationship between awareness and use of OER by students

Variable	Mean	Standard Deviation	N	R	p-value	Remark
Awareness	17	3.2	300	0.983	0.000	Significant
Use	19	4.6				
$\alpha = 0.05$						

Table 6 shows the relationship between awareness and the use of OER by students. The table shows a positive high correlation coefficient of 0.983 and a p-value of 0.000. Testing the hypothesis at 0.05, the p-value is less than the alpha value of 0.05. This means that the null hypothesis is rejected. Therefore, there is a significant relationship between awareness and the use of OER by students of Al Kabir Polytechnic, Jamshedpur, India. The positive relationship implied that awareness of OER positively influences the usage by students in the study.

## Discussion

The study examined the usability of OER by students at Al Kabir Polytechnic in Jamshedpur, India. Students had a high level of awareness of OER, according to the research. The high level of awareness could be attributed to the concept's growing popularity among Indian students in general. This could be due to several OER efforts that have been developed in India as a possible response to critical educational concerns. This finding is consistent with Nagaiah & Thanuskodi's (2021) findings, which revealed that the majority of students were aware of OER. The study also discovered that the students used OER extensively. The increased rate of use could be because of the COVID-19 pandemic, which has driven students to rely on OER and other digital materials due to library closures. The high utilization of OER could be because it allows simple access to a large number of high-quality OER that are freely available on the Internet. This is consistent with Hettige et al. (2022) findings, which revealed that the majority of students used OER. The study also discovered that the students had a high level of OER usability. This can be linked to the fact that OER resources are simple and easy to use, OER materials are clear and understandable, they can be quickly incorporated, and students can locate relevant OER materials in their subjects, among other factors. The user's acceptance and use of the OER are a reflection of its usability. This is in line with the findings of Khaoula et al. (2019), who found that the Moroccan University research web platform had a high level of usability. The only barrier to effective OER use in this study was a lack of digital literacy abilities. Finally, the hypothesis test reveals that there is a significant relationship between awareness and use of OER by Al Kabir Polytechnic students in Jamshedpur, India. The positive relationship suggested that students' awareness of OER has a favorable impact on their use in the study. This study supports the findings of Manzo & Kannan (2020), who discovered that students' awareness of e-resources is highly connected with their use of them.

## Conclusion And Recommendations

The rise of OER is helping to reorient educational offerings in higher education around the world, particularly in underdeveloped nations where access to high-quality educational materials is limited. The students in this study demonstrated a high degree of awareness and use of OER. The survey also found that students had a high level of OER usability and that the sole barrier to effective OER adoption is a lack of digital literacy skills. The hypothesis test reveals that there is a substantial link between OER awareness and use. The positive link suggested that students' awareness of OER has a favorable impact on their use in the study. In other words, there is a clear link between OER awareness and usage. As a

result, the null hypothesis which states that there is no significant association between awareness and use of OER is rejected, while the alternative hypothesis is accepted. The researchers proposed that the school administration and library management provide training on digital literacy skills for pupils to effectively use these resources based on the findings. Again, librarians and lecturers should continue to promote OER use among students to sustain its use.

## Declarations

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**Data availability:** Data generated or analyzed during this study are available from the authors on request.

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## Figures

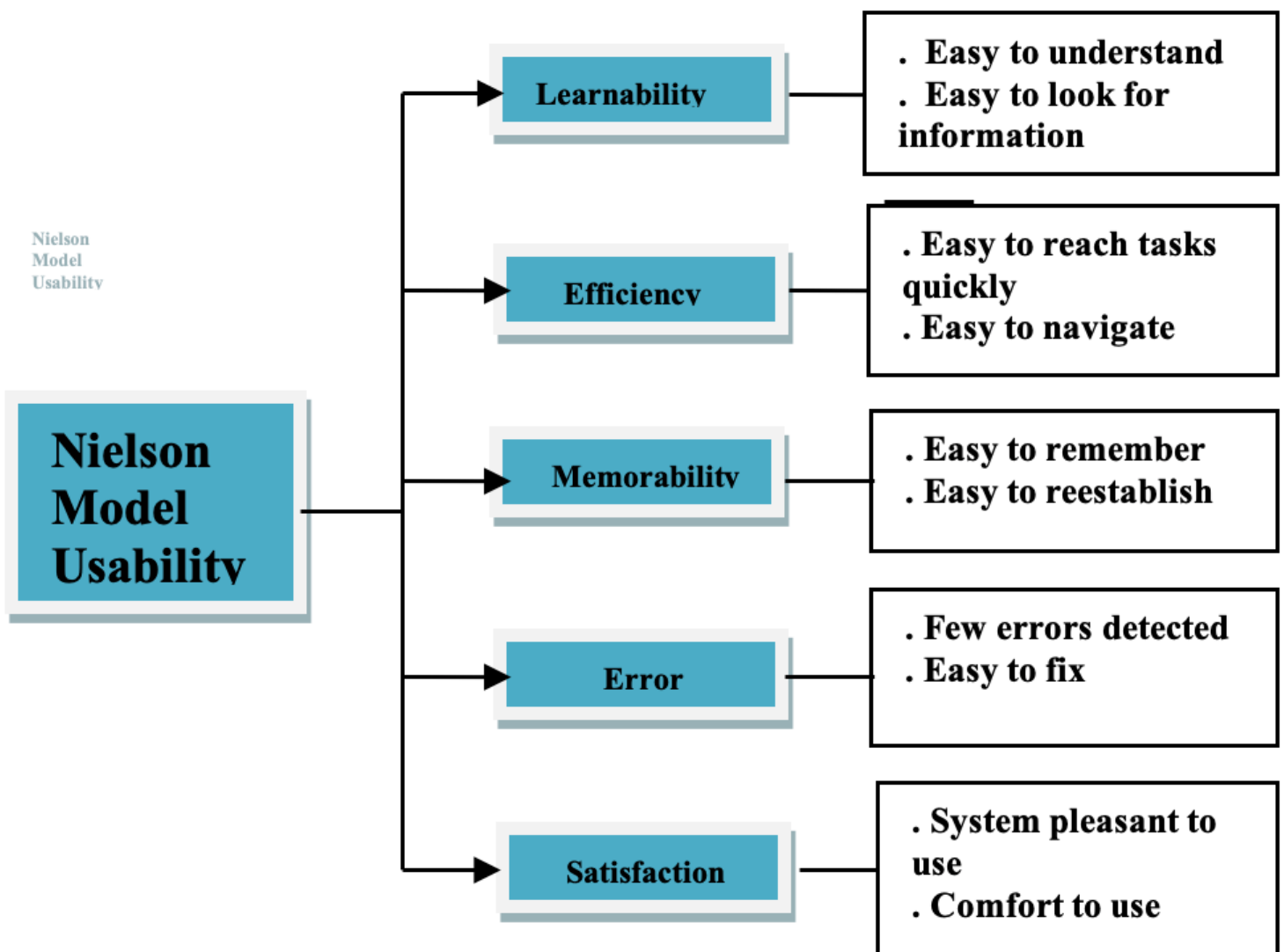


Figure 1

Map of the five usability attributes of the Nielsen model