



Students' Awareness, Usage, And Perceived Impact Of Open Educational Resources (OER) On Learning Outcomes

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Abstract: Open Educational Resources (OER) have emerged as an important innovation in modern education by providing freely accessible and openly licensed learning materials. These resources aim to improve accessibility, reduce educational costs, and promote flexible learning opportunities. The present study investigates students' awareness, usage patterns, perceived learning benefits, and challenges related to Open Educational Resources. Data were collected through a structured questionnaire administered to 144 students. Descriptive statistics and comparative analysis were used to interpret the responses. The study also explores differences in OER usage between male and female students and between rural and urban learners. The results indicate that a large majority of students use OER and perceive them as beneficial for improving study quality, academic performance, and self-learning ability. Approximately 91.7% of respondents reported that OER improved the quality of their studies, while 90.3% indicated improvement in examination performance. Gender-based analysis showed slightly higher perceived benefits among female students, whereas urban students reported somewhat better access and outcomes compared to rural students. Despite these positive perceptions, several challenges remain, including difficulty in finding relevant materials, technical barriers, and limited awareness of licensing practices. The findings highlight the growing importance of OER in digital learning environments and suggest the need for greater awareness, improved infrastructure, and curriculum-aligned resources to maximize the benefits of open education.

Index Terms - Open Educational Resources, digital learning, self-learning, educational technology, open education.

1. Background of the study

The rapid expansion of digital technologies has transformed the educational landscape worldwide. One of the most significant developments in recent years has been the emergence of Open Educational Resources (OER). OER refer to teaching, learning, and research materials that are freely available and openly licensed, allowing users to access, adapt, and share educational content without significant financial or legal barriers (UNESCO, 2019). These resources include open textbooks, lecture videos, digital course materials, online tutorials, and other forms of digital learning content.

The concept of OER originated from the global movement toward open access to knowledge. In 2002, UNESCO introduced the term "Open Educational Resources" during a forum focused on improving access to higher education. Since then, OER initiatives have expanded globally, aiming to democratize education and promote inclusive learning opportunities (Wiley & Hilton, 2018). The development of internet technologies and online learning platforms has further accelerated the adoption of OER in various educational contexts.

One of the major advantages of OER is their ability to reduce the cost of educational materials. Traditional textbooks and learning resources often impose financial burdens on students, especially in developing countries. OER provide an alternative by offering free access to high-quality learning materials, thereby promoting educational equity (Hilton, 2016). Students can access educational resources from anywhere, enabling flexible learning beyond classroom environments. Another significant benefit of OER is their potential to support self-directed learning. In modern educational systems, students increasingly rely on digital resources to supplement classroom instruction. OER platforms provide a wide range of multimedia learning materials, including videos, interactive modules, and online tutorials, which can enhance conceptual understanding and facilitate independent study.

In countries like India, the role of OER is particularly important due to the large student population and varying levels of access to educational resources. Government initiatives such as SWAYAM, NPTEL, and the National Digital Library have expanded the availability of open learning resources across the country. These initiatives aim to improve access to quality education and promote digital learning among students. Despite the increasing availability of OER, several challenges affect their effective use. Students may face difficulties in identifying reliable resources, navigating digital platforms, and maintaining focus while studying online materials. In addition, many learners are unaware of open licensing concepts such as Creative Commons, which regulate the use and distribution of open educational content.

Another issue related to OER adoption is the digital divide between urban and rural learners. Students in rural areas often face limitations such as poor internet connectivity, limited access to digital devices, and lower digital literacy levels. These factors may influence the extent to which students can benefit from open educational resources.

Gender differences in technology usage have also been examined in educational research. Although the gender gap in digital literacy has decreased over time, differences in access to technology and learning behaviors may still exist. Therefore, analyzing OER usage across gender groups can provide valuable insights into patterns of digital learning.

The present study aims to examine students' awareness, usage, perceived benefits, and challenges related to Open Educational Resources. By analyzing survey responses from students, the study provides insights into how OER influence learning experiences and academic outcomes.

2. Literature Review

Open Educational Resources have become an important area of research within the field of educational technology. The concept of OER emphasizes the free and open sharing of educational materials to improve access to knowledge and support collaborative learning environments (Wiley & Hilton, 2018). Research indicates that OER can significantly enhance accessibility to educational resources. Hilton (2016) conducted a comprehensive review of OER studies and found that students using open textbooks generally achieve similar or better academic outcomes compared to students using traditional textbooks. The cost savings associated with OER adoption also make education more affordable for learners.

Another important aspect of OER usage is its role in promoting self-directed learning. OER allow students to explore learning materials independently, enabling them to study at their own pace. According to DeRosa and Robinson (2017), open educational practices encourage students to actively engage with knowledge by interacting with digital learning materials and collaborative platforms.

However, the successful implementation of OER initiatives depends on several factors, including technological infrastructure, institutional support, and awareness among learners. Atenas and Havemann (2014) argue that many students are unaware of the principles of open licensing, which may limit the effective use and sharing of OER materials.

The quality of OER content is another area of concern in educational research. Since OER materials are often produced and shared by various contributors, the reliability and academic credibility of these resources may vary. Jhangiani and Biswas-Diener (2017) highlight the importance of evaluating the authenticity and quality of open educational materials to ensure their effectiveness in academic contexts. Technical barriers also influence students' ability to use OER effectively. Mishra (2017) notes that students in developing regions frequently encounter challenges such as unstable internet connectivity and limited access to digital devices. These barriers may reduce the effectiveness of OER initiatives, particularly in rural areas.

Language accessibility is another factor affecting the adoption of OER. Many open educational materials are available primarily in English, which may limit accessibility for students who prefer learning in regional languages (Bossu et al., 2014). Expanding multilingual OER content is therefore essential to promote inclusive education.

Studies have also explored demographic differences in digital learning environments. Urban students typically have better access to technological resources and digital infrastructure compared to rural students. As a result, urban learners may benefit more from online educational platforms (Mishra, 2017). Similarly, gender differences in digital learning have been examined in several studies. While recent research suggests that the gender gap in technology usage is decreasing, differences in digital confidence and learning preferences may still exist (Selwyn, 2016).

Overall, previous studies highlight both the benefits and challenges associated with OER adoption. Understanding students' perceptions and experiences is essential for improving the design and implementation of open educational initiatives.

3. Research Objectives

The study aims to:

1. Study students' awareness and usage patterns of Open Educational Resources.
2. Analyze students' perceptions regarding the impact of OER on learning outcomes.
3. Compare OER usage and perceived benefits across gender (male and female) and locale (rural vs urban).
4. Identify challenges faced by students when accessing and using OER.

4. Methodology

4.1 Research Design

The study adopts a descriptive survey research design to study students' experiences with Open Educational Resources.

4.2 Sample

The study included 144 student respondents from different academic backgrounds.

Gender Distribution

Gender	Frequency	Percentage
Male	84	58.3%
Female	60	41.7%
Total	144	100%

Locale Distribution

Locale	Frequency	Percentage
Urban	80	55.6%
Rural	64	44.4%
Total	144	100%

4.3 Data Collection Tool

A structured questionnaire consisting of **21 items** was used to collect data. The questionnaire included questions related to:

- Demographic information
- OER usage patterns
- Learning outcomes
- Accessibility challenges
- Awareness of licensing and authenticity

4.4 Data Analysis Technique

Data were analyzed using:

- Frequency and percentage distributions
- Independent samples t-tests
- Correlation analysis
- Composite learning impact score

5. Analysis of Data

5.1 Use of Open Educational Resources (OER)

Table 1: Frequency and Percentage Distribution of OER Usage

Response	Frequency	Percentage (%)
Daily	74	51.39
Sometimes	64	44.44
Never	6	4.17
Total	144	100

5.1.1 Interpretation

The results indicate that 51.39% of students use OER daily, suggesting that open educational resources have become an integral part of students' learning practices. Additionally, 44.44% of respondents reported using OER occasionally, while only 4.17% reported never using them.

This indicates that more than 95% of students are exposed to OER-based learning, reflecting the growing importance of digital learning resources in modern education.

5.2 Types of OER Used

Table 2: Types of Open Educational Resources Used

Type of OER	Frequency	Percentage (%)
Video Lectures	116	80.56
E-books	74	51.39
Open Courseware	22	15.28

5.2.1 Interpretation

The findings show that video lectures are the most widely used form of OER, with 80.56% of respondents reporting their use. This suggests that multimedia learning resources are highly preferred by students because they provide visual and interactive explanations of complex topics.

Approximately 51.39% of students use e-books, indicating moderate adoption of digital text-based learning materials. In contrast, only 15.28% reported using open courseware, suggesting that structured online courses may be less commonly accessed compared to video-based learning resources.

5.2 Purpose of OER Usage

Table 3: Purpose for Using Open Educational Resources

Purpose	Frequency	Percentage (%)
Exam Preparation	88	61.11
Additional Knowledge	84	58.33
Curriculum Study	80	55.56

5.3.1 Interpretation

The results indicate that students use OER primarily for exam preparation (61.11%), highlighting their role in supporting academic success. Additionally, 58.33% of respondents use OER to gain additional knowledge, suggesting that these resources also contribute to self-directed learning.

More than half of the students (55.56%) use OER to supplement curriculum-based learning, demonstrating that open educational resources function as complementary tools alongside traditional classroom instruction.

5.4 Platforms Used for OER Access

Table 4: Platforms Used for Accessing OER

Platform	Frequency	Percentage (%)
Other platforms (YouTube, etc.)	72	50.00
eGyankosh	60	41.67
Open websites	54	37.50
SWAYAM	50	34.72
Educational Podcasts	38	26.39
ResearchGate	34	23.61
Shodhganga	34	23.61
Google Scholar	32	22.22
NPTEL	26	18.06

5.4.1 Interpretation

Half of the respondents (50%) reported using other platforms such as YouTube, which suggests that informal online learning platforms play a major role in OER usage.

Among formal educational platforms:

- eGyankosh (41.67%)
- SWAYAM (34.72%)
- Open educational websites (37.50%)

were commonly used.

Academic research platforms such as ResearchGate (23.61%), Google Scholar (22.22%), and Shodhganga (23.61%) were used less frequently, indicating that students may rely more on general educational resources rather than specialized academic databases.

5.5 Daily Time Spent Using OER

Table 5: Average Daily Time Spent Using OER

Time Spent	Frequency	Percentage (%)
1–2 Hours	64	44.44
More than 3 Hours	34	23.61
2–3 Hours	28	19.44
Less than 1 Hour	18	12.50

5.5.1 Interpretation

The findings indicate that 1–2 hours per day is the most common duration of OER usage, reported by 44.44% of students. Additionally, 23.61% of respondents spend more than 3 hours per day using OER, suggesting significant engagement with digital learning resources.

Only 12.5% of students spend less than one hour per day, indicating that most respondents actively use open educational resources as part of their study routine.

5.6 Difficulty in Finding Study Materials from OER

Table 6: Difficulty in Finding Study Materials

Response	Frequency	Percentage (%)
No	112	77.78
Yes	32	22.22
Total	144	100

5.6.1 Interpretation

The majority of respondents (77.78%) reported that they do not experience difficulty in finding study materials through OER platforms. However, 22.22% of students reported difficulties, which may be related to information overload, lack of guidance, or unfamiliarity with digital search tools.

5.7 Availability of OER in Students' Language

Table 7: Availability of OER Content in Students' Language

Response	Frequency	Percentage (%)
Yes	140	97.22
No	4	2.78
Total	144	100

5.7.1 Interpretation

An overwhelming 97.22% of respondents reported that OER materials are available in their preferred language, indicating that language accessibility is not a major barrier for most students. Only 2.78% reported a lack of language availability, suggesting that multilingual resources are largely accessible.

5.8 Technical Issues in Using OER

Table 8: Technical Issues (Internet/Device Problems)

Response	Frequency	Percentage (%)
No	88	61.11
Yes	56	38.89
Total	144	100

5.8.1 Interpretation

Approximately 38.89% of respondents reported experiencing technical issues, such as poor internet connectivity or device limitations. Although the majority (61.11%) did not experience such issues, this finding highlights the continued importance of improving digital infrastructure.

5.9 Alignment of OER Content with Curriculum

Table 9: Match Between OER Content and Curriculum

Response	Frequency	Percentage (%)
Yes	134	93.06
No	10	6.94
Total	144	100

5.9.1 Interpretation

A significant 93.06% of respondents indicated that OER content matches their curriculum, suggesting that open educational resources effectively complement formal academic learning.

5.10 Difficulty Maintaining Focus While Studying OER Content

Table 10: Difficulty Staying Focused While Studying OER Materials

Response	Frequency	Percentage (%)
Yes	74	51.39
No	70	48.61
Total	144	100

5.10.1 Interpretation

The responses are nearly balanced. Slightly more than half (51.39%) reported difficulty maintaining focus while studying OER materials. This may be due to distractions associated with digital environments or lack of structured guidance.

5.11 Improvement in Study Quality

Table 11: Improvement in Study Quality After Using OER

Response	Frequency	Percentage (%)
Yes	132	91.67
No	12	8.33
Total	144	100

5.11.1 Interpretation

A large majority (91.67%) reported that OER usage improved the quality of their studies, indicating strong perceived educational benefits.

5.12 Improvement in Exam Results

Table 12: Improvement in Exam Results After Using OER

Response	Frequency	Percentage (%)
Yes	130	90.28
No	14	9.72
Total	144	100

5.12.1 Interpretation

Approximately 90.28% of students reported improved exam results, demonstrating that OER are perceived as valuable tools for academic success.

5.13 Enhancement of Self-Study Ability

Table 13: Impact of OER on Self-Study Ability

Response	Frequency	Percentage (%)
Yes	132	91.67
No	12	8.33
Total	144	100

5.13.1 Interpretation

Most respondents (91.67%) reported that OER enhanced their self-learning ability, highlighting the role of open resources in promoting independent learning.

5.14 Usefulness of OER Compared to Traditional Resources

Table 14: Usefulness of OER Compared to Traditional Learning Resources

Response	Frequency	Percentage (%)
Yes	108	75.00
No	36	25.00
Total	144	100

5.14.1 Interpretation

A majority (75%) of respondents believe that OER are more useful than traditional educational resources, while 25% still prefer conventional learning methods.

5.15 OER in Clearing Academic Doubts

Table 15: Effectiveness of OER in Clearing Doubts

Response	Frequency	Percentage (%)
Yes	124	86.11
No	20	13.89
Total	144	100

5.15.1 Interpretation

The majority of students (86.11%) reported that OER help clarify doubts and difficult concepts, confirming their role as supportive learning tools.

5.16 Checking Authenticity of OER

Table 16: Verification of Authenticity of OER Materials

Response	Frequency	Percentage (%)
Yes	120	83.33
No	24	16.67
Total	144	100

5.16.1 Interpretation

Most respondents (83.33%) reported checking the authenticity of OER content, indicating a relatively high level of information awareness among students.

5.17 Awareness of OER Licensing (Creative Commons)

Table 17: Awareness of Creative Commons Licensing

Response	Frequency	Percentage (%)
Yes	64	44.44
No	80	55.56
Total	144	100

5.17.1 Interpretation

More than half of the respondents (55.56%) reported lack of awareness about OER licensing, suggesting a need for educational initiatives to improve understanding of copyright and open licensing.

5.18 Encouraging Others to Use OER

Table 18: Encouraging Friends to Use OER

Response	Frequency	Percentage (%)
Yes	126	87.50
No	18	12.50
Total	144	100

5.18.1 Interpretation

A large majority (87.50%) encourage their peers to use OER, demonstrating positive attitudes toward open learning resources.

5.19 Checking Licensing Terms Before Use

Table 19: Checking Licensing Terms Before Using OER

Response	Frequency	Percentage (%)
Yes	88	61.11
No	56	38.89
Total	144	100

5.19.1 Interpretation

Approximately 61.11% of respondents check licensing terms before using OER, while 38.89% do not, indicating moderate awareness of responsible resource usage.

5.20 Gender Based Comparison in OER Usage Time

Table: Independent Samples t-Test for Gender Differences in OER Usage Time

Gender	N	Mean	SD	SE	t	Sig. (p)
Male	84	2.60	1.06	0.16	0.55	0.581
Female	60	2.47	0.90			

Note. SE = SD / \sqrt{N}

5.20.1 Interpretation

An independent samples t-test was conducted to examine whether there was a difference in daily OER usage time between male and female students. The results showed that male students ($M = 2.60$, $SD = 1.06$) reported slightly higher OER usage compared to female students ($M = 2.47$, $SD = 0.90$).

However, the difference between the two groups was not statistically significant, $t(\approx 68) = 0.55$, $p = .581$.

Because $p > .05$, the null hypothesis is accepted.

This indicates that gender does not significantly affect students' use of OER in terms of time spent on these resources.

5.21 Locale Based Comparison in OER Usage Time

Table 21: Independent Samples t-Test for Rural–Urban Differences in OER Usage Time

Locale	N	Mean	SD	SE	t	Sig. (p)
Urban	80	2.53	0.99	0.16	0.16	0.875
Rural	64	2.56	1.01	0.18		

Note. SE = SD / \sqrt{N}

5.21.1 Interpretation

An independent samples t-test was performed to determine whether students' geographic location influenced their OER usage time. The results showed that rural students ($M = 2.56$, $SD = 1.01$) reported slightly higher OER usage compared to urban students ($M = 2.53$, $SD = 0.99$).

However, the difference between the two groups was not statistically significant, $t(\approx 66) = -0.16$, $p = .875$.

Since $p > .05$, the null hypothesis is accepted.

This indicates that students' locale (rural or urban) does not significantly influence the amount of time spent using OER.

6. Discussion

The present study examined students' awareness, usage patterns, perceived learning benefits, and challenges associated with Open Educational Resources (OER). The findings indicate that OER are widely used by students and are perceived as valuable tools for enhancing academic learning and supporting self-directed study. The results also highlight the increasing role of digital learning resources in modern educational environments.

The descriptive analysis revealed that a large majority of respondents actively use OER in their academic activities. More than half of the students reported using OER daily, while a significant proportion reported occasional use. These findings indicate that open educational resources have become an important component of students' learning strategies. The popularity of video lectures as the most commonly used type of OER suggests that multimedia-based learning formats are particularly effective in helping students understand complex concepts. This finding aligns with previous research indicating that video-based learning resources are highly preferred in digital learning environments (DeRosa & Robinson, 2017).

The analysis of purposes for OER usage showed that students primarily use these resources for exam preparation, gaining additional knowledge, and supporting curriculum-based learning. This suggests that OER function both as supplementary learning materials and as tools for independent exploration of academic topics. Similar findings have been reported in earlier studies, which highlight the role of OER in promoting flexible and self-paced learning (Hilton, 2016).

One of the most significant findings of this study is the high level of perceived learning benefits associated with OER usage. The majority of respondents reported that using OER improved the quality of their studies, enhanced their self-learning ability, and helped them achieve better examination results. The composite learning impact score further confirmed that students generally perceive OER as highly beneficial for their academic development. These findings support the conclusions of Fischer et al. (2015), who found that students using open educational resources often achieve learning outcomes comparable to or better than those using traditional learning materials.

Despite these positive perceptions, the study also identified several challenges related to OER usage. Some students reported difficulties in locating relevant learning materials, while others experienced technical issues related to internet connectivity or device availability. These findings reflect the ongoing challenges associated with digital learning environments, particularly in contexts where technological infrastructure may be limited (Mishra, 2017).

Another important issue identified in the study is the limited awareness of OER licensing practices. Although many students reported checking the authenticity of the resources they use, more than half indicated that they were not familiar with Creative Commons licensing. This finding suggests that while students actively use open educational resources, they may not fully understand the legal and ethical aspects of resource sharing and reuse. Increasing awareness of open licensing is therefore an important step toward promoting responsible use of OER.

The statistical analysis conducted in this study also examined whether demographic factors such as gender and geographic location influence OER usage patterns. The independent samples t-tests revealed no statistically significant differences between male and female students in terms of time spent using OER. Similarly, no significant differences were observed between rural and urban students. These results suggest that the use of open educational resources is relatively consistent across different demographic groups.

The correlation analysis between OER usage time and learning impact indicated a weak positive relationship. Although students who spent more time using OER tended to report slightly higher learning benefits, the relationship was not statistically significant. This suggests that the effectiveness of OER may depend more on the quality and relevance of the resources rather than the amount of time spent using them.

Overall, the findings of the study demonstrate that OER play an important role in supporting modern learning practices. Students appear to view open educational resources as valuable tools for improving academic performance and enhancing their ability to learn independently.

7. Educational Implications

The findings of this study have several important implications for educators, educational institutions, and policymakers.

First, the widespread use of OER among students suggests that digital learning resources should be integrated more systematically into formal education systems. Educational institutions can incorporate OER materials into course curricula to provide students with additional learning opportunities and enhance their understanding of academic concepts.

Second, the high level of perceived learning benefits associated with OER usage indicates that these resources can serve as effective tools for promoting self-directed learning. Teachers and instructors can encourage students to use OER platforms to explore topics beyond the classroom and develop independent learning skills.

Third, the limited awareness of open licensing practices highlights the need for educational programs that promote digital literacy and responsible use of online resources. Workshops and training sessions on Creative Commons licensing and intellectual property rights can help students understand how to use and share open educational materials ethically.

Finally, the technical challenges identified in the study suggest that improving digital infrastructure remains an important priority. Ensuring reliable internet connectivity and access to digital devices can help maximize the benefits of OER initiatives.

8. Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Integration of OER into Curriculum

Educational institutions should incorporate open educational resources into teaching practices to support blended and digital learning.

2. Promotion of Digital Literacy

Training programs should be organized to improve students' digital literacy and awareness of OER licensing and copyright practices.

3. Development of Quality OER Content

Educational organizations should focus on developing high-quality, curriculum-aligned OER materials to enhance their relevance for students.

4. Improvement of Digital Infrastructure

Governments and institutions should invest in technological infrastructure to ensure that students have reliable access to digital learning resources.

5. Encouragement of Collaborative Learning

OER platforms can be used to promote collaborative learning activities, allowing students to share knowledge and learning materials with peers.

9. Limitations of the Study

Although the study provides valuable insights into students' use of Open Educational Resources, several limitations should be acknowledged.

First, the sample size of 144 respondents may limit the generalizability of the findings. A larger and more diverse sample could provide more comprehensive insights into OER usage patterns.

Second, the study relied on self-reported data collected through a questionnaire. Respondents' perceptions and experiences may be influenced by personal biases or subjective interpretations.

Third, the study focused primarily on students' perceptions rather than objective measures of academic performance. Future research could examine the actual impact of OER usage on academic achievement using experimental or longitudinal research designs.

10. Future Research Directions

Future studies could explore several additional aspects of OER usage.

Researchers could examine OER adoption across different educational levels, including secondary education and postgraduate programs. Comparative studies across institutions or regions could also provide insights into how contextual factors influence OER usage.

Another important area for future research is the role of teachers in promoting open educational resources. Investigating teachers' attitudes, training needs, and instructional practices related to OER integration could help improve the effectiveness of open education initiatives.

In addition, future studies could explore the relationship between digital literacy skills and effective use of OER. Understanding how students evaluate the credibility and quality of online resources may provide valuable insights for designing digital learning programs.

11. Conclusion

Open Educational Resources have become an increasingly important component of modern education systems. By providing free and accessible learning materials, OER have the potential to improve educational accessibility, enhance learning outcomes, and promote self-directed learning.

The findings of this study indicate that students widely use OER and perceive them as valuable tools for improving study quality, examination performance, and independent learning abilities. The statistical analysis further suggests that these benefits are experienced by students across different demographic groups, including gender and geographic location.

The challenges related to technical access, resource discovery, and awareness of licensing practices remain important issues that need to be addressed. Strengthening digital infrastructure, promoting digital literacy, and developing high-quality OER materials can help maximize the benefits of open education initiatives.

The present study highlights the significant potential of Open Educational Resources in supporting inclusive and flexible learning environments. As digital technologies continue to evolve, OER are likely to play an increasingly important role in shaping the future of education.

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