International Journal of Librarianship and Administration (IJLA)
ISSN: 2231-1300 Volume 16, Number 1 (2025), pp. 21-30

http://www.irphouse.com

Awareness and Usage of Open Educational Resources (OER) among Selected Engineering Institutions in Rayalaseema Region

Pusapati Ramireddy
Research Scholar
Dept. of Library and Information Science
Dravidian University, Kuppam
Email: ramireddy1974@gmail.com
&
Dr. Avineni Kishore
Assistant Professor
Dept. of Library and Information Science
Dravidian University, Kuppam
Email: saikishoresvu@gmail.com

Abstract

This study explores the awareness, usage patterns, and challenges of Open Educational Resources (OER) among students and faculty of three engineering institutions - JNTUA (Anantapuramu), KSRM (Kadapa), and KEC (Kuppam). A total of 978 valid responses were collected from 1,175 distributed questionnaires using a simple random sampling method. The study reveals that 94.58% of respondents are well aware of OER platforms such as SWAYAM and NPTEL. MOOCs and SWAYAM/NPTEL are the most preferred OER, mainly used weekly or bi-monthly for academic purposes like filling knowledge gaps and better understanding of subjects. However, issues such as poor internet access, lack of local content, and limited institutional support hinder effective utilization. The findings highlight the growing relevance of OER in engineering education and the need for improved access and institutional encouragement.

Keywords: SWAYAM/NPTEL, Engineering Education, Awareness and Usage, Learning Resources, Student and Faculty Engagement

Introduction

Open Educational Resources (OER) play a vital role in democratizing education by offering free and flexible learning materials for students and faculty worldwide. In India, platforms like SWAYAM and NPTEL have become major sources for online learning and skill enhancement. Engineering education, in particular, benefits greatly from OER through access to lectures, tutorials, and project-based learning materials. Despite their potential, the effective use of OER depends on awareness, accessibility, and institutional support. This study focuses on understanding the awareness and usage patterns of OER among three engineering institutions in Andhra Pradesh, aiming to identify the key challenges and motivations influencing adoption.

Related Literature

Ahmad et al. (2025) used machine learning to predict early dropouts in SWAYAM MOOCs and found dropouts linked to low engagement. Singh and Bhandari (2025) reported moderate awareness but limited use of SWAYAM–NPTEL due to time, internet, and language issues. Alenezi, Wardat, and Akour (2023) studied how digital education and OER foster higher-order thinking using Active Learning and Education 4.0 concepts. They analyzed OER design by 147 academics from 11 countries. Rodes Paragarino and Gewerc (2023) explored how women academics' identities in Latin America are shaped through OER participation, showing gender impacts empowerment. Ebner, Orr, and Schon (2022) highlighted limited research on OER effectiveness and proposed a framework to assess outputs, outcomes, and impact. Overall, studies suggest OER supports learning, engagement, and professional development but faces challenges like accessibility, awareness, and digital readiness.

Methodology

A total of 978 respondents (685 students and 293 faculty) from three engineering institutions- JNTUA (Government) - Anantapuramu (265), KSRM (Autonomous) - Kadapa (400), and KEC (Private) - Kuppam (313) participated in this study. Questionnaires were distributed using simple random sampling, resulting in a high response rate of 83.23%.

Objectives

The objectives of the study were as follows;

1. To examine the level of awareness of Open Educational Resources (OER) among respondents.
2. To determine the frequency and duration of OER usage.
3. To explore the purposes for which OER are utilized in engineering education.
4. To identify the different types of OER used by the institutions.
5. To investigate the challenges faced by respondents while accessing OER.
6. To assess the overall satisfaction of respondents regarding the use of OER in the institutions.

Analysis and Interpretation of data

The collected data were analyzed and interpreted to identify trends, patterns, and insights regarding respondents' awareness, usage, and challenges in using OER across the selected institutions.

Table 1: Distribution of Respondents by Academic Status

Nature of Respondents		Type of Institution			
		JNTUA (Govt.)	KSRM (Auto.)	KEC (Priv.)	Total
Students	N	189	282	214	685
	%	71.32	70.50	68.37	70.04
Faculty	N	76	118	99	293
	%	28.68	29.50	31.63	29.96
Total	N	265	400	313	978
	%	100	100	100	100

Table 1 presents the distribution of respondents based on their academic status across three selected institutions. Out of the total 978 respondents, 685 (70.04%) are students, while 293 (29.96%) are faculty members. At JNTUA, 71.32% of respondents are students and 28.68% are faculty. At KSRM, 70.50% are students and 29.50% are faculty. At KEC, 68.37% are students, and 31.63% are faculty. Overall, students from the majority of respondents in all three institutions.

Table 2: **Distribution of Respondents by Discipline**

Nature of Course		Type of Institution			
		JNTUA (Govt.)	KSRM (Auto.)	KEC (Priv.)	Total
CE	N	61	57	23	141
	%	23.02	14.25	7.35	14.42
CSE & IT	N	64	105	75	244
	%	24.15	26.25	23.96	24.95
ECE	N	67	109	113	289
	%	25.28	27.25	36.10	29.55
EEE	N	47	60	45	152
	%	17.74	15.00	14.38	15.54
ME	N	26	69	57	152
	%	9.81	17.25	18.21	15.54
Total	N	265	400	313	978
	%	100	100	100	100

Table 2 presents the distribution of respondents according to their discipline across the three selected institutions. Overall, the highest percentage of respondents (29.55%) belong to Electronics and Communication Engineering (ECE), followed by Computer Science and Information Technology (CSE & IT) (24.95%), Civil Engineering (CE) (14.42%), and both Electrical and Electronics Engineering (EEE) and Mechanical Engineering (ME) (15.54% each).

Table 3: Awareness of Open Educational Resources (SWAYAM, NPTEL, etc.)

Opinion		Type of Institution			
		JNTUA (Govt.)	KSRM (Auto.)	KEC (Priv.)	Total
Yes, Very Well	N	247	381	297	925
	%	93.21	95.25	94.89	94.58
Somewhat	N	18	19	16	53
	%	6.79	4.75	5.11	5.42
Total	N	265	400	313	978
	%	100	100	100	100

Table 3 shows that a vast majority of respondents (94.58%) reported having a "very good" awareness of OER platforms, while a small proportion (5.42%) indicated being only "somewhat" aware.

Breaking it down by institution, 93.21% of JNTUA respondents, 95.25% of KSRM respondents, and 94.89% of KEC respondents reported "very good" awareness of OER platforms. The remaining respondents 6.79% from JNTUA, 4.75% from KSRM, and 5.11% from KEC-indicated only "somewhat" awareness.

Table 4: Use of Open Educational Resources

Use of OER	Type of Institution							
	JNTUA (Govt.) (N=265)		KSRM (Auto.) (N=400)		KEC (Priv.) (N=313)		Total (N=978)	
	N	%	N	%	N	%	N	%
Online Learning Resources	0	0.00	12	3	2	0.64	14	1.43
Open Access Journal Articles	2	0.75	1	0.25	3	0.96	6	0.61
MOOCs	100	37.74	251	62.75	217	69.33	568	58.08
MIT OCW	3	1.13	1	0.25			4	0.41
NROER	20	7.55	32	8	28	8.95	80	8.18
YouTube Videos	0	0.00	1	0.25	3	0.96	4	0.41
Khan Academy	1	0.38	3	0.75	2	0.64	6	0.61
SWAYAM/NPT	116	43.77	147	36.75	136	43.45	399	40.80
TED Talks	1	0.38	3	0.75	2	0.64	6	0.61
Coursera	0	0.00	5	1.25	2	0.64	7	0.72
edX	0	0.00	3	0.75	2	0.64	5	0.51

Table 4 presents the usage of Open Educational Resources (OER) by respondents from the selected engineering colleges. Across all institutions, MOOCs (58.08%) and SWAYAM/NPTEL (40.80%) consistently emerged as the most widely used platforms, while NROER (8.18%), Online Learning Resources (1.43%), Coursera (0.72%), and other OER were used by only a small fraction of respondents.

Table 5: Frequency of Using OER (SWAYAM, etc.)

Frequency	Type of Institution							
	JNTUA (Govt.)		KSRM (Auto.)		KEC (Priv.)		Total	
	N	%	N	%	N	%	N	%
Daily	34	12.8	32	8	8	2.56	74	7.57
Weekly	123	46.4	13	33.5	74	23.6	331	33.84
Bi-monthly	98	36.9	14	35.7	17	56.8	419	42.84
Monthly	9	3.40	77	19.2	48	15.3	134	13.70
As needed	1	0.38	8	2	5	1.60	14	1.43

Rarely	0	0.00	6	1.5	0	0.00	6	0.61
Total	265	100	40	100	31	100	978	100

Table 5 indicates that a majority of respondents (42.84%) access OER (SWAYAM, etc.) bi-monthly, followed by 33.84% who access them weekly, 13.70% monthly, 7.57% daily, 1.43% 'as needed' and 0.61% for 'rarely'.

These findings suggest that OER are widely used in academic activities, with most respondents preferring weekly or bi-monthly access, highlighting their role as supplementary learning resources rather than primary daily study materials.

Table 6: Time Spent Accessing OER per Week

Time Spent		Type of Institution			
		JNTUA (Govt.)	KSRM (Auto.)	KEC (Priv.)	Total
<10 hrs	N	74	113	56	243
	%	27.92	28.25	17.89	24.85
10 - 15 hrs	N	182	274	245	701
	%	68.68	68.50	78.27	71.68
>15 hrs	N	9	13	12	34
	%	3.40	3.25	3.83	3.48
Total	N	265	400	313	978
	%	100	100	100	100

Table 6 shows the weekly time spent by respondents on OER. Overall, a majority (71.68%) of respondents spent 10–15 hours per week, followed by less than 10 hours (24.85%) and more than 15 hours (3.48%).

Breaking it down by institution, 68.68% of JNTUA, 68.50% of KSRM, and 78.27% of KEC respondents spent 10–15 hours per week on OER. Those spending less than 10 hours per week accounted for 27.92% at JNTUA, 28.25% at KSRM, and 17.89% at KEC. A small proportion of respondents spent more than 15 hours per week: 3.40% at JNTUA, 3.25% at KSRM, and 3.83% at KEC.

Table 7: Purpose of Using OER by Institution

Purpose		Total No. of Respondents (N=978)					
		Frequently	Sometimes	Rarely	WS	WAM	Rank
For assignments	N	155	814	9	2102	2.15	6
	%	15.85	83.23	0.92			
Extra reading	N	108	857	13	2051	2.10	7
	%	11.04	87.63	1.33			
Better understanding	N	597	342	39	2514	2.57	2
	%	61.04	34.97	3.99			
Fill knowledge gaps	N	640	311	27	2569	2.63	1
	%	65.44	31.80	2.76			

Personal interest	N	305	593	80	2181	2.23	5
	%	31.19	60.63	8.18			
Prepare ahead	N	470	423	85	2341	2.39	3
	%	48.06	43.25	8.69			
Get new views	N	359	535	84	2231	2.28	4
	%	36.71	54.70	8.59			
Try new learning style	N	252	563	163	2045	2.09	8
	%	25.77	57.57	16.67			

Table 7 presents the purposes for which the respondents use OER. Based on the weighted arithmetic mean, the purposes have been ranked according to preference. The table shows that respondents most preferred filling knowledge gaps, which received the first rank, followed by better understanding (2nd rank), preparing ahead (3rd rank), getting new views (4th rank), personal interest (5th rank), assignments (6th rank), extra reading (7th rank), and trying new learning styles, which received the last rank.

All three institutions ranked filling knowledge gaps and better understanding as the top two purposes, indicating a common academic focus among the respondents.

Table 8: Types of OER Used by Institutions

OER		Total No. of Respondents (N=978)					
		Frequently	Sometimes	Rarely	WS	WAM	Rank
Textual Materials	N	202	770	6	2152	2.20	6
	%	20.65	78.73	0.61			
Videos	N	144	822	12	2088	2.13	7
	%	14.72	84.05	1.23			
Audio	N	553	381	44	2465	2.52	1
	%	56.54	38.96	4.50			
Learning Modules	N	422	501	55	2323	2.38	3
	%	43.15	51.23	5.62			
Images	N	331	286	361	1926	1.97	12
	%	33.84	29.24	36.91			
Tutorials	N	459	439	80	2335	2.39	2
	%	46.93	44.89	8.18			
Open Textbooks	N	225	504	249	1932	1.98	11
	%	23.01	51.53	25.46			
Lecture Notes	N	258	529	191	2023	2.07	8
	%	26.38	54.09	19.53			
Animations	N	250	507	221	1985	2.03	10
	%	25.56	51.84	22.60			
Software Tools	N	270	492	216	2010	2.06	9
	%	27.61	50.31	22.09			
Online Lessons	N	382	415	181	2157	2.21	5
	%	39.06	42.43	18.51			

Quizzes	N	290	610	78	2168	2.22	4
	%	29.65	62.37	7.98			

It is evident from Table 8 that the respondents from the selected institutions use a variety of OER. Based on the weighted arithmetic mean, the types of OER are ranked according to preference. The table shows that respondents most preferred audio resources, which received the first rank, followed by tutorials (2nd rank), learning modules (3rd rank), quizzes (4th rank), online lessons (5th rank), textual materials (6th rank), videos (7th rank), lecture notes (8th rank), software tools (9th rank), animations (10th rank), open textbooks (11th rank), and images, which received the last (12th) rank.

Table 9: Difficulties in Accessing OER by Institution

Difficulties	Type of Institution								
	JNTUA (Govt.) (N=265)			KSRM (Auto.) (N=400)			KEC (Priv.) (N=313)		
	N	%	Rank	N	%	Rank	N	%	Rank
Lack of technical skills	115	43.40	22	218	54.50	23	181	57.83	19
No time to search/use	149	56.23	9	266	66.50	12	241	77.00	10
Poor hardware/software	118	44.53	19	226	56.50	20	185	59.11	18
Poor internet access	173	65.28	3	292	73.00	1	267	85.30	3
No local content	139	52.45	15	263	65.75	13	237	75.72	13
No local content	175	66.04	1	289	72.25	2	265	84.66	5
No interest	174	65.66	2	252	63.00	15	270	86.26	1
No institutional policy	148	55.85	10	269	67.25	9	235	75.08	14
Not available in local language	122	46.04	17	223	55.75	21	179	57.19	21
Students lack access	172	64.91	4	285	71.25	4	260	83.07	7
Low value from decision-makers	147	55.47	11	268	67.00	10	244	77.96	9
No rewards for teachers	111	41.89	24	234	58.50	18	180	57.51	20
Don’t understand copyright	171	64.53	5	286	71.50	3	261	83.39	6
No financial support	144	54.34	14	267	66.75	11	238	76.04	12
Unaware of OER repositories	119	44.91	18	230	57.50	19	171	54.63	22
Fear of copyright issues	164	61.89	8	284	71.00	5	257	82.11	8
Legal concerns	146	55.09	12	261	65.25	14	232	74.12	15
Lack of time	117	44.15	20	239	59.75	16	186	59.42	17

Unsure about usefulness	170	64.15	6	282	70.50	6	268	85.62	2
Lack of recognition	145	54.72	13	274	68.50	8	239	76.36	11
Reputation risk	116	43.77	21	235	58.75	17	165	52.72	23
No support	169	63.77	7	276	69.00	7	266	84.98	4
College policy restrictions	123	46.42	16	222	55.50	22	231	73.80	16
Peer criticism	114	43.02	23	192	48.00	24	115	36.74	24

It is evident from the Table 9 that the difficulties faced by respondents in accessing OER differ across institutions. For JNTUA, the top five challenges are no local content (1st rank), lack of interest (2nd rank), poor internet access (3rd rank), students' lack of access (4th rank), and not understanding copyright (5th rank). For KSRM, the major difficulties are poor internet access (1st rank), no local content (2nd rank), not understanding copyright (3rd rank), students' lack of access (4th rank), and fear of copyright issues (5th rank). In KEC, the top challenges include lack of interest (1st rank), unsure about usefulness (2nd rank), poor internet access (3rd rank), no support (4th rank), and no local content (5th rank).

Overall, poor internet access and absence of local content are common barriers across the institutions, while lack of interest is particularly high in KEC, highlighting both technical and motivational challenges in the use of OER.

Table 10: Overall Satisfaction with OER Use for Learning by Institution

Satisfaction	JNTUA (Govt.)		KSRM (Auto.)		KEC (Priv.)		Total	
	N	%	N	%	N	%	N	%
Very Satisfied	66	24.91	58	14.50	81	25.88	205	20.96
Satisfied	155	58.49	307	76.75	197	62.94	659	67.38
Somewhat Satisfied	44	16.60	35	8.75	35	11.18	114	11.66
Total	265	100	400	100	313	100	978	100

Table 10 indicates that the majority of respondents are satisfied with the use of OER for learning. Overall, 67.38% of respondents expressed being "satisfied," 20.96% reported being "very satisfied," and 11.66% were "somewhat satisfied."

By institution, 58.49% of JNTUA respondents, 76.75% of KSRM respondents, and 62.94% of KEC respondents reported being "satisfied." Those who were "very satisfied" included 24.91% from JNTUA, 14.50% from KSRM, and 25.88% from KEC. A smaller proportion of respondents16.60% from JNTUA, 8.75% from KSRM, and 11.18% from KEC indicated being "somewhat satisfied."

Findings

This section presents the key findings of the study based on the analysis of data collected from the respondents across the selected engineering institutions.

- Majority of respondents across all three institutions are students (70.04%), while faculty members constitute 29.96%.
- Electronics and Communication Engineering (ECE) has the highest representation among respondents (29.55%), followed by CSE & IT (24.95%), EEE and ME (15.54% each), and CE (14.42%).
- Most respondents (94.58%) reported having "very good" awareness of OER platforms, with only a small fraction (5.42%) being "somewhat" aware.
- MOOCs (58.08%) and SWAYAM/NPTEL (40.80%) are the most widely used OER platforms among respondents, while other platforms have minimal usage.
- A majority of respondents (42.84%) access OER bi-monthly followed by weekly access (33.84%), indicating that OER are mainly used as supplementary learning resources.
- Most respondents (71.68%) spend 10–15 hours per week using OER, showing a consistent engagement across the institutions.
- The main purpose of using OER is to fill knowledge gaps, followed by better understanding and preparing ahead, highlighting a focus on academic improvement.
- Among types of OER, audio resources are most preferred, followed by tutorials and learning modules, while images are the least used.
- Key challenges in using OER include poor internet access, lack of local content, and lack of interest, with some variation in priority across institutions.
- Overall satisfaction with OER usage is high, with 67.38% satisfied, 20.96% very satisfied, and only 11.66% somewhat satisfied, indicating positive user experience.

Conclusion

In JNTUA, students formed the majority, with ECE and CSE & IT being the top disciplines, and respondents showed very good awareness of OER, mainly using MOOCs and SWAYAM/NPTEL for filling knowledge gaps. At KSRM, students were also the majority, with ECE and CSE & IT leading, and respondents preferred weekly or bi-monthly OER access, mostly using audio resources and tutorials. In KEC, students formed the majority, with ECE having the highest representation, and respondents highlighted lack of interest and unsure usefulness as key challenges, despite showing good awareness and satisfaction with OER usage. Across all institutions, MOOCs and SWAYAM/NPTEL were the dominant platforms, with respondents spending 10–15 hours per week on OER. Overall, OER are widely used for academic purposes, with respondents generally satisfied but facing some technical and motivational barriers.

References

[1] Ahmad, I., Sharma, S., Leal-Saballos, C., Kumar, M., Kumar, A., & Ahmad, S. (2025). Predicting early dropouts in SWAYAM MOOCs using machine learning techniques: A comparative analysis. In R. Singh & A. Gehlot (Eds.), Business data analytics (pp. 250–262). Springer. https://doi.org/10.1007/978-3-031-80778-7_18

[2] Alenezi, M., Wardat, S., & Akour, M. (2023). The need of integrating digital education in higher education: Challenges and opportunities. Sustainability, 15(6), 4782. https://doi.org/10.3390/su15064782

[3] Ebner, M., Orr, D., & Schön, S. (2022). OER impact assessment: A framework for higher education institutions and beyond. Open Education Studies, 4, 296–309. https://doi.org/10.1515/edu-2022-0018

[4] Rodes Paragarino, V., & Gewerc, V. (2023). Educational innovation at Latin American universities, open educational resources, and gender. Education Sciences, 13(19). https://doi.org/10.3390/educsci13010019
[5] Singh, R., & Bhandari, R. S. (2025). Students' awareness and usage of SWAYAM–NPTEL in higher education. Revista Review Index Journal of Multidisciplinary, 5(1), 147–154. https://doi.org/10.31305/rrijm2025.v05.n01.017