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Users' Awareness and Usage of Open Educational Resources in Central Universities of North India

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ABSTRACT

Technological advancements and open educational resources (OER) together have opened up wider opportunities to access globally created educational resources by anyone across the globe. A paradigm shift has been witnessed in the format of learning resources, their access methods, and the medium of delivery of the knowledge content. The findings of this research reveal that the academic community of central universities (CU) of North India is well aware of open educational resources. E PG Path Shala is the most popular and most widely used, followed by NPTEL and YouTube. The majority of users use OERs as and when they require them. The purpose of using OERs for the majority of respondents is to prepare class notes. Most of the faculty and research scholars use OERs to improve their professional competency. The majority of respondents desired that the institutions should provide free internet/Wi-Fi on campus and should also provide regular updates about OERs.

Keywords: Open educational resources; OER; Users awareness of OER; Users 'studies, users' expectations; OER survey

1. INTRODUCTION

In the past few decades, the education sector has witnessed a major paradigm shift both in terms of teaching methods and in terms of educational resources. Print resources have been largely replaced by Digital Learning Resources. This digital transformation has made educational content available and affordable for the communities at large. Teaching and learning communities worldwide are developing plenty of educational resources on the internet to be used freely and openly by everyone. There is tremendous growth in the number and variety of information resources available on the internet which has become an important source for scholarly scientific literature and also a greater number of information resources, as well as the results of scientific and medical research, is now being available on the web[1]. Almost all the research and academic institutions are connected to one way or another on the net. It has become the format of choice for academic library patrons as they offer users many opportunities that were not available to their predecessors[2].

These collaborative efforts have given birth to a new world where every human can access, create or contribute to the wealth of human knowledge and open educational resources as a result of such global movement. The open educational resources movement is nurturing a knowledge society where a culture of learning, cooperating, creating, and sharing is developed among educators. The paradigm shift in teaching towards a student-centred approach with much emphasis on his needs and interests, and the growing patronage OER and its appealing packages enjoy in the hands of students make it an important tool in the entire academic community[3].

Educational Communities like university academia, research scholars, curriculum developers, and educational planners are getting benefits by using OER as free intellectual capital to enhance their knowledge and understanding. It helps researchers overcome problems and issues they come across in their academic work[4]. After the successful journey of Open Access and Open-Source Software movements, the movement of OER has brought an extended version of these globally accepted higher education movements towards openness.

The phrase "Open Educational Resources" is most commonly understood in different ways by different communities and users. The OERs are usually online educational content like an open-source that content is available with an open license (usually with creative commons license). The most common synonyms used for OER are open content, open learning objects, and open learning resources. These OER play a major role in providing equal and free access to educational resources. They are teaching and learning content that lives in the public domain and is free to use or reuse[5].

OER refers to all that teaching and learning resources encompasses all types of textbooks, course materials, images, videos, games, Audio/Video lectures, open software, simulations, research data, research papers, and research outputs, etc that are available in digital format and that are free

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of Charge available to all. In the year 1996, California state university initiated the project MERLOT. It was the very first website where the teachers could share their learning material freely and that educational material could be used, searched, and evaluated by other teaching communities also. The term Open content was introduced by Wiley in the year 1998. Similarly, like the MERLOT project, Rice University started their project Connexions (presently named as OpenStax). This Connexions project, an educational content repository was started in 1999.

The other educational institution that has played a major role in the OER movement is the Massachusetts Institute of Technology (MIT). MIT is a pioneer in introducing the movement of OER. In 2001, MIT announced Open Course Ware and placed all their learning material for free access on the internet. This one pioneer initiative inspired many other universities around the world to make their educational content freely available for everyone which resulted in the formation of an open courseware consortium. The term "Open Educational Resources" was coined by UNESCO in 2002. UNESCO's forum in 2002, used OER first time to explore the impact of Open Courseware on higher education in developing countries and used the term "Open Educational Resources"6,7.

Emphasizing the importance of OERs Navarrete8 transcribes "the increasing availability of Open Educational Resources has become a valuable opportunity to foster access to high-quality educational content released by prestigious universities and academic institutions around the world, under open licenses to allow their free use, reuse, and adaptation".

Like other developed countries, India is also a leading and active role player in various open initiatives, whether it is an open-source software movement, open access of journal movement, or open access repositories movement. There is an extensive availability of open content in terms of open access journals, open access repositories, and other open-source software repositories like Eprints, Fedora, and Dspace, etc. whereas open educational resources in higher education are very less as compared to other open access resources.

In the Indian scenario, the open educational resources movement is well supported by the Indian government. National Knowledge Commission was set up in 2005 intending to bring excellence to the Indian Educational System. In 2008, National Knowledge Commission initiated a National E-Content Project. The idea was to create an open educational resources repository of the educational content produced in India and abroad. Hence, the National Repository of Open Educational Resources (NROER) came into existence in 2013. Later, many other initiatives took place such as E Gyankosh by IGNOU, SWAYAM, Wikipedia Indian Chapter, Creative Commons India, EklavyaProject, etc[9].

This paper has been classified into eight sections. The first section focuses on the introduction where OER and its historical background are discussed. The second section explores the literature survey in light of research objectives. In the third section, broader research objectives have been discussed. The fourth section focuses on research hypotheses. The fifth section focuses on the scope and limitations of the study. The sixth section discusses research methodology data analysis and interpretation. In the seventh section findings of the study have been revealed. The conclusion recommendations and suggestions are made in the eighth section.

2. LITERATURE REVIEW

While extensively reviewing the existing related literature, it has been found that limited research studies have been conducted in India and Abroad to ascertain the Users' Awareness, Behaviour, and Attitude towards OER. Rolfe[10] conducted a study on OER where just 50 teachers from the faculty of health and life sciences at De Montfort University, UK participated in this survey. Hussain[4] has analysed the "attitude of university academia towards the use of open educational resources in higher education" in Pakistan. The interview and questionnaire methods were used in both studies. Faculty from both the university had a favourable attitude towards OER. Most of the respondents were aware of the OERs being provided by their university but they were not aware of the other open resources' repositories. Rolfe[10] and Hussain[4] have reported Copyright issues and scarce Technological aid as the major constraints in the use of OER. Hussain[4] reveals that internet bandwidth, electricity, and viruses, etc as some of the barriers in the access of OER in Pakistan. The studies have limited scope and respondent participation resulting in difficulty in generalisation.

Prince and Saravanan[11] in their research study on the Awareness and Perception towards OER among the users in the Higher Educational Institutions in Kanyakumari District revealed a favorable attitude towards the use of OER. They have mentioned the major issues like; free of cost availability, course-related usage of OER, and satisfaction with OER. As compared to the study conducted by Rolfe[10] the case study conducted by Prince and Saravanan[11] involved a large heterogeneous population i.e., around 950 respondents and there was involvement from all the categories like students, research scholars, and faculty also. Moreover, the study was not limited to only one subject domain the respondents were from different sets of educational institutions as arts and science colleges, education colleges, universities and engineering colleges, etc. The major limitation of the study was that the population of the study was from one district i.e., from Kanyakumari only.

Issa *et al*.[12] conducted a research study to investigate the undergraduates' attitude towards the utilisation of open educational resources. Out of 6 universities in Kwara state (Nigeria), the researcher selected three universities and three major subject disciplines. The descriptive research method was used and the responses from 398 respondents were collected through a research questionnaire. The major findings of the study reflected the positive attitude of undergraduates towards the utilisation of OER. Both the male and female respondents were equally in favor of the utilisation of OERs. The researcher purposefully selected three different subject areas to assess whether there was any difference in opinion based on the subject specialisation. From the conclusions drawn it has been found that there was no significant difference in utilisation of OER based on subject specialisation.

Amit Kumar[13] conducted a study on "Open Educational Resources: Issues and Problem Experienced by Social

Scientists of Select Higher Education Institutes in India." The social science research scholars and faculty members of 4 universities Jawahar Lal Nehru university, Delhi University, Mizoram University, and Jamia milia Islamia university at a response rate of 86.67 per cent participated in this survey. The study revealed that 61.92 per cent of respondents were aware of the open educational resources but 38.38 per cent confirmed that they don't know how to access open educational resources. About 78.31 per cent of respondents revealed that they are up to some or up to great extent are involved in OER activities. About the respondent's opinion towards OER 68.08 per cent confirmed that they had submitted teaching and learning resources for publications as OER and 77.31 per cent confirmed that they would continue submitting teaching and learning resources for publications as OER in the future also, 83.46 per cent confirmed that they had also used OER from other academics in their teaching and research. The study revealed that 60.77 per cent of respondents confirmed that they get positive cooperation from people from other parts of the countries for producing and exchanging OER. About preferred format, for publishing OER most of the respondents replied that 81.15 per cent that for module handbooks, 79.62 per cent for PowerPoint slides, 77.31 per cent for recorded lectures, and 76.54 per cent for scholarly journals/articles. The most preferred format of OER used by most of the respondents was 88.85 per cent textbooks, 88.08 per cent scholarly journals/articles, and 88.23 per cent interactive learning objects. About 45 per cent of respondents answered in favor of sharing teaching and learning resources at global levels. Most of the respondents 91.92 per cent feel that publishing OER will enhance the reputation of the institute, followed by 89.62 per cent who think it will enhance the personal reputation. About the barriers in OER most of the respondents 78.08 per cent feel that lack of skills and 73.46 per cent feel that lack of awareness is a major barrier.

Appian, Essel, and Amankwa[14] surveyed to analyse "awareness, attitude, and utilisation of Open Educational Resources at Kumasi Technical university". The study was conducted on students and faculty of Kumasi Technical University. the result showed that 53.5 per cent of teachers were new to the term open educational resources and 85.5 per cent of students were not aware of open educational resources. The majority of 64.3 per cent of teachers confirmed that they are aware of the Open Educational resources repository at Kumasi Technical University and 77.9 per cent of students responded that they are not aware of any Open Educational Resources repository being provided by Kumasi Technical University. About 51.7 per cent of lecturers responded that they have used the open educational repository of Kumasi Technical University and similarly about 19.9 per cent of students also confirmed that they have also used the repository provided by their Kumasi technical university. About 57.1 per cent of lecturers agreed upon the statement that the use of open educational resources is convenient to them, 71.4 per cent of lecturers confirmed that it is easy to use open educational resources facilities. About 64.8 per cent of students agreed upon those open educational resources give access to academic material and 61 per cent of students agreed that it is easy to use open educational resources facility, 39.6 per cent of students agreed that open educational resources had provided limitless access to study material. The poor internet connectivity was reported as the major problem in accessing open educational resources. about suggestions to improve usage, 30.9 per cent said advancement of library resources and creating awareness about open educational resources to students and 19.5 per cent said improving internet connections as a suggestion to improve the usage of open educational resources.

Perryman and Seal9 conducted a study on "Open Educational Practices and Attitudes to Openness Across India." The study has presented the report of findings of open educational research hub pan India survey. The result of the phase 1 survey showed that open educational resources had a very positive impact on educators' professional growth and also on learners' study performance and overall learning experience. The survey revealed that 67.5 per cent of respondents consider open licensing important and the study further revealed that educators more often share and most widely use open educational resources in India. The study revealed that 100 per cent of respondents were using open educational resources for their professional development and 92 per cent of respondents were using them for teaching or training purposes and 46 per cent use open educational resources to improve their non-native language skills. The study further showed that 78 per cent of teachers use open educational resources to compare it with other teaching materials. The findings showed that 80 per cent of educators feel that the use of open educational resources has broadened their coverage of the curriculum and 78 per cent feel how they have more up to date knowledge in their subject and 77 per cent think that the use of open educational resources has broadened their coverage on curriculum and 78 per cent feel how they have more up to date knowledge in their subject and 77 per cent feel that use of open educational resources is reflected on the way they teach and 76 per cent responded that now they use a broader range of teaching and learning methods. About the purpose of using open educational resources, the respondents revealed that 96 per cent use open educational resources to get new ideas and inspirations, 98 per cent use to enhance their professional development and 98 per cent use to stay up to date in their subject, and 86 per cent use as a self-study option.

Arun Kumar and P Kannan15 conducted a study on awareness and use of OER among PG students a study of Alagappa university. Out of 200 respondents, 144 respondents participated in this survey at a response rate of 72 per cent. The objective of the study was to find out the awareness and usage of OERs among PG students of Alagappa University. The findings of the frequency of using OERs by PG students revealed that the majority of 47.92 per cent of users were using OERs weekly, followed by 35.42 per cent users using it on daily basis and 9.03 per cent respondents were using it once in a fortnight.

The analysis of literature has revealed that no work has been done on OER by researchers on Central Universities (CU) in North India. Hence, an attempt is made to cover this research gap by conduction this research. The broader research objectives in the light of the literature survey are mentioned in the next section.

3. OBJECTIVES OF THE STUDY

The present research has taken up with the following objectives:

- To know the users' awareness about OER and other well-known OER initiatives.
- To understand the users' frequency of using OERs.
- To understand the users' purpose of using OERs.
- To find out the type of resources more important to the academic community of central universities.

To meet precise expectations the general research hypotheses proposed are discussed in the next section.

4. HYPOTHESIS OF THE STUDY

Based on the objectives of the study, the below mentioned two hypotheses had been formulated.

H_{01}: There is no significant difference between respondnets regarding awareness about OER.

$$H_{01} : \mu 1 = \mu 2 = \mu 3 = \mu 4$$

H_{a1}: There is significant difference between respondnets regarding awareness about OER.

$$H_{a1} : \mu 1 \neq \mu 2 \neq \mu 3 \neq \mu 4$$

H_{02}:There is no significant difference between respondents regarding frequency of using OER.

$$H_{02} : \mu 1 = \mu 2 = \mu 3 = \mu 4$$

H_{02}:There is significant difference between respondents regarding frequency of using OER.

$$H_{a2} : \mu 1 \neq \mu 2 \neq \mu 3 \neq \mu 4$$

Here, an attempt is made to know the statistical difference in means of responses among faculty ($\mu 1$), UG students ($\mu 2$), PG students ($\mu 3$) and researchers ($\mu 4$).

5. SCOPE AND LIMITATIONS OF THE STUDY

The present study covers the four CU of North India i.e., Central university of Haryana, Central university of Himachal Pradesh, Central university of Jammu and, Central University of Punjab. The respondents include- Faculty, Research Scholars, UG students, and PG students of these four central universities. The scope of the study has been taken in the light of research gap.

6. METHODOLOGY DATA ANALYSIS AND INTERPRETATION

The current study is based on analysis of data collected with the help of a structured and tested questionnaire using survey method. The Solvin's formula is used to derive the sample size in the following way:

$$\text{Sample Size(n)} = \frac{N}{1+Ne^2} = \frac{8463}{1+8463(0.05)2} = 382$$

Where N = population size=8463, Margin error(e)= (0.05) at 95 per cent level of significance

Here, 1000 questionnaires were distributed with 250 to each CU using stratified random sampling. Due to covid-19 situations the data is collected using both the online and offline modes. Finally, 710 complete responses received have been used for final data analysis.

6.1 Results of Data Analysis and Interpretation

The primary data collected through a questionnaire has been analysed using SPSS 26.0. The reliability analysis of the questionnaire was checked using the Cronbach Alpha test and the reliability result was above 0.6. The other parametric and non-parametric tests are also conducted on the collected data. The appropriate statistical tools & techniques such as Mean, Standard Deviation, Chi-Square test, and Ranking methods have been applied. Kurtosis and Skewness are found within +2 and -2 limits which are statistically acceptable for assumptions of Normal Distribution. Many researchers have revealed that the Kurtosis cut-off limits are acceptable within the +2 to -2 range (Curran *et al*. 1996; and George & Mallery, 2010) and +7 to -7 (Hair *et al*. 2010; Bryne, 2010; and Curran *et al*. 1996). The Skewness limits fall within the range of +2 to -2 (Hair *et al*. 2010; Bryne, 2010; and Curran *et al*. 1996). The results reveal that Kurtosis and Skewness are within the range of -2 to +2.

6.1.1 Awareness Regarding Open Educational Resources

To understand the utilisation, access, and popularity of OER the foremost important response required is to know the level of awareness of the academic community regarding OER. The respondents selected in this research include faculty, UG students, PG students, and Research Scholars. The scale statistics of Awareness regarding OER are shown in Table 1. The data distribution was also checked for Normal distribution. It has been found that the mean of 2.47 on the 3-point Likert scale has explained 82.3 per cent construct which is sufficient for the validity of the scale construct (Hair *et al*., 2010). Hence, parametric tests that assume Normal Distribution shall be applied (Hair *et al*., 2010).

To reach this objective, the respondents were asked about their level of awareness about OER. The responses collected are further classified using the Cross Tabulation Method based on the category of users and their level of awareness about open educational resources. The details are mentioned in Table 2.

Table 2 reveals that majority of 354(49.9 %) are fully aware of OER followed by 334 (47.0 %) respondents are slightly aware, and only 22(3.1 %) are not at all aware. As a result, 96.9 per cent (49.9 % + 47 %) respondents are either 'fully aware' or 'slightly aware' but are aware of OER. Only 3.1 per cent respondents are 'not at all aware' about OER. However, results of Chi-square have showed that there is a significant difference in responses from faculty, UG students, PG students and Research Scholars.

To further explore the difference an attempt was made to know the statistical difference in means of responses among

Table 1. Scale statistics of awareness about open educational resources

Variable	Std. Dev.	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OER Awareness Mean=2.47	.558	.311	-.409	.092	-.864	.183

Table 2. Awareness about open educational resources

OER awareness	Users category (%)					Chi – Square Value
	Faculty	UG students	PG students	Research scholar	Total (%)	
Fully aware	88 (12.39)	63 (8.87)	144 (20.28)	59 (8.3)	354 (49.9)	
Slightly aware	60 (8.45)	63 (8.87)	115 (16.19)	96 (13.52)	334 (47.0)	$x^2 = 28.929$ $df = 6$ $p = .000$
Not at all	1 (0.14)	10 (1.40)	8 (1.12)	3 (0.42)	22 (3.1)	
Total	149 (20.98)	136 (19.15)	267 (37.60)	158 (22.25)	710(100)	

Table 3. Post Hoc (Tukey HSD) test of multiple comparison regarding OER awareness

(I) Category	(J) Category	Mean Difference (I-J)	Std. Error	Sig.	Remarks
Faculty	UG students	.194*	.066	.017	Ha Accepted
	PG students	.075	.056	.551	H0 Accepted
	Research scholar	.229*	.063	.002	Ha Accepted
UG students	Faculty	-.194*	.066	.017	Ha Accepted
	PG students	-.120	.058	.169	H0 Accepted
	Research scholar	.035	.065	.948	H0 Accepted
PG students	Faculty	-.075	.056	.551	H0 Accepted
	UG students	.120	.058	.169	H0 Accepted
	Research scholar	.155*	.055	.027	Ha Accepted
Research Scholar	Faculty	-.229*	.063	.002	Ha Accepted
	UG students	-.035	.065	.948	H0 Accepted
	PG students	-.155*	.055	.027	Ha Accepted

*. The mean difference is significant at the 0.05 level.

Table 4. Frequency of using OER

Frequency of using OER	Users category				Total (%)	Chi –Square (χ^2)
	Faculty	UG students	PG students	Research scholar		
Once in a week	34	22	63	37	156 (22)	
Once in a month	16	20	26	9	71 (10)	
As and when required	94	81	162	95	432 (60.8)	$x^2 = 16.259$ d f = 9 p = 0.62
Never used	5	13	16	17	51 (7.2)	
Total	149	136	267	158	710	

faculty ($\mu 1$), UG students ($\mu 2$), PG students ($\mu 3$) and researchers ($\mu 4$). Post Hoc (Tukey HSD) multiple comparison test is applied. This test is widely used for comparing multiple groups to test hypotheses using ANOVA (Hair *et al*., 2010). The Post Hoc (Tukey HSD) test results are shown in Table 3.

Table 3 shows the results of Post Hoc (Tukey HSD) multiple comparison test regarding OER awareness among faculty, researchers, PG and UG students. The results are discussed as follow.

The comparison of Faculty with PG students revealed that there was no statistical significance difference as the value (Significance level) was more than 0.05 (95 % level of significance) accepting H0. However, the comparison of Faculty with UG students and Research Scholars shows statistically significant (Significance level>0.05). Hence, H_{a1} was accepted. The comparison of UG students with PG students and Research Scholars, has revealed no statistical significance difference in mean resulting acceptance of Ho. On the other side when UG students were compared with Faculty, there was a statistical significance difference (≤0.05), resulting acceptance of H_{a1}.

The comparison of PG students' responses found that Ho was accepted for comparing with Faculty and UG students. While comparison of PG students with Research Scholars found statistically significant difference resulting acceptance of H_{a1}. In comparing Research Scholars responses, it was found that Ho was accepted for mean difference significance level of Faculty and UG students. However, while comparison of PG students, there was a statistically significant difference resulting acceptance of H_{a1}. Hence, it is concluded that OER awareness are higher for faculty as compared with mean responses of UG Students (0. 194), and PG Students (0.075), and Research scholars (0.229).

6.1.2 Frequency of Using OER

The respondents were asked about their frequency of using OER. The responses are further classified using Cross tabulation method based on the category of users and their frequency of using OER. The responses are depicted in the Table 4.

Table 5. Awareness and usage of OER initiatives / projects

Variables	Not Aware (1)	Aware (2)	Aware and used (3)	Mean	Std. Deviation	Variance	Rank
EPG Pathshala	141	332	237	2.14	0.718	0.515	1
NPTEL	132	354	224	2.13	0.697	0.485	2
YouTube	38	571	101	2.09	0.434	0.188	3
Khan Academy	146	354	210	2.09	0.703	0.494	4
Wikisources	70	521	119	2.07	0.512	0.262	5
Swayam	147	373	190	2.06	0.687	0.472	6
E-GYankosh	190	304	216	2.04	0.756	0.571	7
MOOCS	217	296	197	1.97	0.764	0.583	8
OER by Institutions	189	371	150	1.95	0.689	0.475	9
MIT	293	197	220	1.9	0.844	0.713	10
Sakshat	378	128	204	1.75	0.872	0.761	11
Connexions	400	84	226	1.75	0.907	0.823	12
NROER	462	56	191	1.62	0.881	0.775	13
Merlot	454	106	150	1.57	0.818	0.668	14

Table 4 reveals that the frequency of using OERs for majority of respondents 432 (60.8 %) is primarily need based as they use OERs only as and when they are required. The frequency of using OER for 156 (22 %) respondents are once in a week, 71 (10 %) use them once in a month and 51 (7.2 %) had never used OERs. The Chi-square value of $x^2 = 16.259$, d f = 9 and p = 0.62. Shows that the level of significance is more than 0.05 hence, there is no statistical significance difference in responses of faculty, UG students, PG students, and Research Scholars regarding frequency of using OER. Here, H_{02} is accepted.

6.1.3 Awareness and Usage of OER Initiatives/Projects

There are a large number of OER projects and initiatives going on at national and international level. A list of 14 most popular and resourceful OERs is itemised and respondents were asked to mark their response about its awareness and usage. The

Table 6. Type of OERs more important to users

Category		Open e-books	Open audio/ video	Open access journals	Open courses	Blogs	Open case studies	Open Conf. Proc.
Faculty	Mean	4.55	4.62	4.42	4.28	3.68	3.85	3.88
	Rank (Mean)	II	I	III	IV	VII	VI	V
	Std. Dev.	.683	.645	.790	.837	.988	1.075	1.046
	% of Total N	21.2 %	21.1 %	21.4 %	21.3 %	21.5 %	21.5 %	21.3 %
UG students	Mean	4.56	4.67	3.83	4.14	3.68	3.42	3.22
	Rank(Mean)	II	I	IV	III	V	VI	VII
	Std. Dev.	.768	.597	1.199	1.114	1.230	1.156	1.232
	% of Total N	19.5 %	19.5 %	19.2 %	19.7 %	19.8 %	19.8 %	19.6 %
PG students	Mean	4.53	4.63	4.02	4.11	3.61	3.73	3.79
	Rank(Mean)	II	I	IV	III	VII	VI	V
	Std. Dev.	.727	.656	1.041	1.009	1.137	1.238	1.189
	% of Total N	38.1 %	38.2 %	37.4 %	38.3 %	38.2 %	37.9 %	38.0 %
Research scholar	Mean	4.42	4.33	4.64	4.25	3.65	3.99	4.18
	Rank(Mean)	II	III	I	IV	VII	VI	V
	Std. Dev.	.864	.987	.758	.971	1.209	1.136	1.103
	% of Total N	21.3 %	21.1 %	22.0 %	20.7 %	20.5 %	20.8 %	21.0 %
Total (Overall)	Mean	4.52	4.57	4.21	4.18	3.65	3.75	3.78
	Rank(Mean)	II	I	III	IV	VII	VI	V
	Std. Dev.	.757	.736	1.014	.990	1.139	1.180	1.190
	% of Total N	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

data collected is tabulated and depicted in the percentages in the Table 5 and further Mean values, standard deviations scores and ranking of OER initiatives based on their mean values are also mentioned.

The responses recorded on a 3- point Likert scale are depicted in Table 5 and it had revealed that among all the listed OER initiatives E PG Path Shala is the most popular OER and is used by majority of respondents. As per mean value 2.14 E PG Path Shala is ranked as first and most widely used OER. It is followed by NPTEL, as per mean value 2.13, it is ranked as second most used and aware OER. Table 5 reveals that majority of respondents are aware about YouTube and as per Mean value 2.09, it is placed at rank 3 among the awareness and usage of OER Initiatives. The study further revealed that most of the respondents were not aware about the OER Initiatives NROER, Merlot, Connexions and Sakshat.

6.1.4 Purpose of Using OERs

The purpose of using open educational resources differ from one category to another based on their general and specific requirements. The analysis and interpretation of responses collected related to purpose of using OERs has been presented in the Annexure I.

Annexure I reveals that the purpose of using OER varies according to the category of respondents. As per total mean value of 1.84 it is observed that the majority of respondents use OERs to prepare their class notes, followed by to get new ideas and inspirations at second preference with a mean value of 1.83, to develop professional competencies is the third major purpose of using OERs as per mean value 1.81, followed by to obtain general knowledge as per mean value 1.79, followed by preparing for seminars/conferences with mean value 1.67, to prepare for research projects rank as sixth among purposes as per mean value 1.66, for comparing with other printed sources at seventh rank as per mean value 1.63 and to write research articles is at the eighth rank as per 1.61overall mean value.

The data was further explored in detail to see the Purpose of using OERs among the different categories of respondents. Annexure I revealed that most of the faculty use OERs to get new ideas and inspirations with a mean of 1.93, followed by to develop professional competencies as per mean value 1.87, followed by to obtain general knowledge as per mean value 1.83. Further, faculty members use OERs to write a research article and to prepare class notes with a mean value of 1.81, followed by to prepare research projects as per mean value 1.80, then followed by to prepare for seminars/conferences with 1.79 mean value and at last to compare them with already available printed resources with 1.73 mean value.

Annexure I revealed that the major purpose of using OERs for UG students is to prepare class notes as the mean value of 1.91, followed by to obtain general knowledge with 1.80 mean, followed by to get new ideas and inspirations as mean value of 1.76, then to use it for developing their professional competencies as per mean 1.70, followed by to compare them with already available printed resources 1.57. The purpose of using OERs for research-based activities such as to prepare for seminar/ conferences (mean 1.40), to prepare research projects (mean 1.36) and to write articles, etc (mean 1.32) were least important for UG students may be due to the reason that UG students are not much involved in research activities and their major purpose of using OERs revolves around class curriculums and activities.

Further, while analyzing the purpose of using OERs for PG students' category Annexure I revealed that similarly like UG students PG students also use OERs primarily to prepare their class notes as per mean value 1.86. Further, as per mean of 1.82, the second most important purpose for using OERs for PG Students are to obtain general knowledge and to get new ideas and inspirations as per mean of 1.81, followed by to improve professional competency may be due to the reason that most of the PG students prepare for their competitive exams and Job hunts, etc. To use OERs for preparing research projects is ranked as the fourth major purpose of using OERs for PG students, followed by preparing for seminars/ conferences. To compare it with printed resources and to use them for writing research articles are the least preferred purpose for the PG student's category.

Annexure I revealed that the major purpose of using OERs for Research scholars as per mean value 1.84 is to improve professional competencies, followed by to prepare research articles, class notes and to get new inspirations all three with the same mean value 1.80, followed by to prepare for seminar/conferences with mean value 1.76 and to prepare research projects as per mean value 1.72. Research scholars least preferred to use OERs to obtain general knowledge as per mean value 1.68 and to compare them with printed resources were the least important purpose of using OERs for research scholars as per 1.58 mean value.

6.1.5 Importance of Open Educational Resources

There are many types and formats of OERs available over the internet. The respondents were requested to rate importance of OER. The responses were recorded on a five-point Likert scale from Most Important to Not at all Important. The results are depicted in the Table 6.

Table 6 revealed that open Audio/videos are more important to all categories of respondents as per mean value 4.57, it is followed by open ebooks as second preferred OERs as per mean value 4.52, followed by open access journals as per mean value 4.21, followed by open courses as per mean value 4.18, followed by mean 3.78 for open conference proceedings, then followed by open case studies as per mean 3.75 and the least preferred OERs are Open Blogs as per 3.65 total mean value.

As shown in Table 6 and as per mean value and ranking between the categories revealed that Open Audios /Videos are the first choices for faculty, UG, and PG Students whereas for research scholars Open Access Journals are the first choice among different OERs. Open Ebooks are the second most important OERs for all the categories of respondents. Open Access Journals are the most important for Research scholars, for faculty, it is the third preferred OERs whereas for UG and PG students it is the fourth choice. Open Courses are the third important OERs for UG and PG students whereas for faculty and Research scholars open courses are the fourth choice among different types of OERs. Open Conference proceedings are the

fifth important OERs for faculty, PG, and Research scholars whereas for UG students Open Conference proceedings are the last choice. Open case studies are ranked as the sixth important OERs for all the categories of respondents. Open Blogs are the 5th choice for UG students whereas for all other categories it is ranked at 7 and the last choice among all other types of OERs.

7. FINDINGS OF THE STUDY

The major findings of the study are as follow

- The academic community of central universities of North India is well aware of open educational resources
- Table 1 reveals that a significantly large number of respondents (96.9 %) are either fully or slightly aware of OERs only 3.1 per cent are not aware of OERs
- It is concluded that OER awareness is higher for faculty as compared with mean responses of UG Students (0. 194), and PG Students (0.075), and Research scholars (0.229)
- The majority of users (60.8 %) use OERs only as and when they required them followed by 22 per cent of respondents who use them once a week
- Table 4 reveals that there is no statistically significant difference in responses of faculty, UG students, PG students, and Research Scholars regarding the frequency of using OER
- E Pg Path Shala is the most popular and most widely used OER, followed by NPTEL and YouTube
- The purpose of using OERs for the majority of respondents is to Prepare class notes. Most of the faculty and research scholars use OERs to get new ideas and inspirations and improve their professional competency
- The respondents prefer to use OERs in audio/video format and as per mean value 4.57 it is ranked as first and the most preferred among the various types of OERs
- Open blogs are the least preferred type of resource for most of the respondents.

8. CONCLUSIONS

In this technological era, the utilisation of open educational resources in academic institutions is inevitable. Most of the educational content is freely available on different websites under the open educational repositories' platform.

The findings of the present study can be useful for libraries and OER service providers in understanding the requirements and expectations of academic communities regarding OERs. The current study has revealed that maximum users have awareness about OERs and they have a favourable attitude towards OERs. This shows that the academic communities are interested to use OERs and they are well aware of their benefits. Although most of the institutions are providing free internet/ Wi-Fi facilities on their campuses still more infrastructural support may be provided to libraries for easy and efficient accessing of OERs.

The findings reveal that users prefer educational content in audio/video format, the same is proved by their preference for YouTube over other OER initiatives. If we take a look at users' expectations from the libraries regarding OERs, it is observed that YouTube meets the users' expectations at large and perhaps is the main reason for its wider popularity and usage. YouTube provides the content in audio/ video format and it also brings down all the related content in suggested videos etc. It also provides reviews and a rating system to any content through the likes, views, and comments received on particular content.

The modern era libraries need to revive their resource dissemination techniques. The information architecture of the websites providing OER facilities needs to be strengthened. The structure of websites should bring together the scattered resources in one place to make searching of particular subject-related content easy and less time-consuming. The libraries should also provide regular updates to their academic communities about the available OERs.

The policymakers need to clearly define the copyright policies etc to increase the free utilisation of these OERs. Sustainability for a longer duration is one of the biggest challenges due to which the Open Educational Resources Movement is still struggling. Frequent training programs and copyright awareness sessions are required to increase the popularity and use of OERs.

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Annexure I

Purpose of using OERs

Category		Writing articles	Prepare class notes	Research projects	General knowledge	Sem/conf. preparation	For comparing with print	Inspirations	Develop competencies
Faculty	Mean	1.81	1.81	1.80	1.83	1.79	1.73	1.93	1.87
	Rank	IV	IV	V	III	VI	VII	I	II
	Std. Deviation	.392	.397	.402	.381	.412	.445	.251	.335
	% of Total Sum	23.6 %	20.6 %	22.7 %	21.4 %	22.4 %	22.4 %	22.2 %	21.8 %
	% of Total N	21.0 %	21.0 %	21.0 %	21.0 %	21.0 %	21.0 %	21.0 %	21.0 %
	Variance	.154	.158	.162	.145	.170	.198	.063	.112
UG students	Mean	1.32	1.91	1.36	1.80	1.40	1.57	1.76	1.70
	Rank	VIII	I	VII	II	VI	V	III	IV
	Std. Deviation	.467	.285	.482	.400	.493	.497	.426	.461
	% of Total Sum	15.6 %	19.9 %	15.7 %	19.3 %	16.1 %	18.5 %	18.5 %	18.0 %
	% of Total N	19.2 %	19.2 %	19.2 %	19.2 %	19.2 %	19.2 %	19.2 %	19.2 %
	Variance	.218	.081	.232	.160	.243	.247	.181	.212
PG students	Mean	1.54	1.86	1.72	1.82	1.69	1.63	1.82	1.81
	Rank	VII	I	IV	II	V	VI	II	III
	Std. Deviation	.499	.350	.452	.382	.465	.485	.382	.397
	% of Total Sum	35.9 %	37.9 %	38.7 %	38.3 %	38.0 %	37.6 %	37.5 %	37.6 %
	% of Total N	37.6 %	37.6 %	37.6 %	37.6 %	37.6 %	37.6 %	37.6 %	37.6 %
	Variance	.249	.123	.204	.146	.216	.235	.146	.157
Research scholar	Mean	1.80	1.80	1.72	1.68	1.76	1.58	1.80	1.84
	Rank	II	II	IV	V	III	VI	II	I
	Std. Deviation	.403	.403	.453	.467	.429	.496	.403	.372
	% of Total Sum	24.8 %	21.7 %	22.9 %	20.9 %	23.5 %	21.6 %	21.9 %	22.6 %
	% of Total N	22.3 %	22.3 %	22.3 %	22.3 %	22.3 %	22.3 %	22.3 %	22.3 %
	Variance	.163	.163	.205	.218	.184	.246	.163	.138
Total	Mean	1.61	1.84	1.66	1.79	1.67	1.63	1.83	1.81
	Overall Rank	VIII	I	VI	IV	V	VII	II	III
	Std. Deviation	.488	.363	.472	.408	.471	.484	.376	.396
	% of Total Sum	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
	% of Total N	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
	Variance	.238	.132	.223	.167	.222	.235	.142	.157