FACULTY VOICES EXPLORED: A MIXED-METHOD RESEARCH ON ATTITUDE TOWARDS OER ADOPTION IN CENTRAL UNIVERSITIES OF NORTH EAST INDIA

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ABSTRACT

The advent of OERs signifies a major overhaul in education, driven by the opportunities offered by ICT and an ongoing commitment to openness and collaboration. The present innovative approach for educational resources not only tackles the issues concerning copyright, but also adheres to the values of inclusion, accessibility, and the dissemination of global knowledge. With their increasing popularity, OERs have the potential to change education into a more open collaborative, democratic, and equitable process. Prior studies have predominantly concentrated on faculty members from fields such as engineering, arts, and science, resulting in a scarcity of studies on faculty members in the discipline of Humanities and Social Sciences. Consequently, there is a dearth of holistic perspectives that encompass the perspectives of both users and creators of OER. Putting a focus on faculty members' attitudes and the perspectives of OER users and creators, this study investigates the adoption of OER in the higher educational institutes of North East India. To address this gap, a mixed-method research design with a convergent parallel approach was employed to gather both qualitative and quantitative data. A descriptive survey method was used to collect data from faculty members in the Humanities and Social Science disciplines across eight central universities of North-East India. The sample size consisted of 221 faculty members from the departments of Humanities and Social Sciences – Education, Sociology, Political Science, Mass Communication, History, English, and Hindi. The findings revealed that faculty members exhibited a moderate level of attitude towards OER adoption. The qualitative analysis further supported this, indicating that faculty (OER users and OER creators) generally hold a moderately positive perception towards OER adoption.

Keywords: OER adoption, attitude, faculty members, OER users, OER creators, central universities.

INTRODUCTION

The dynamic nature of education in the digital era has resulted in a profusion of educational resources, ranging from lesson plans and assignments to lecture notes and presentations. The availability of these materials on internet platforms has led to a paradigm shift in the creation, distribution, and utilisation of educational content. The rise of digital tools and platforms has facilitated the spread of these materials, providing faculty members and learners with a rich reservoir of resources to enhance the teaching and learning experience.

However, many of these educational resources fall under the purview of copyright laws, demanding approval from the copyright holder or adherence to other authorized principles or provisions (Cronin, 2017; Fitzgerald, et al., 2008). This signifies that unless the author (the copyright holder) grants permission or

makes the content publicly available, no one else will be able to share or alter it in any manner. Many scholars (OECD, 2007; Meinke, 2020) have highlighted the violation of copyright law, which includes acts such as replication, modification, public display, and distribution without the authors' permission. This confirms that educational resources are "locked" or "restricted" to a great extent (Prabhala, 2010), thereby making it complicated to use, reuse, and modify them in an open and free manner. Consequently, this restriction impedes open knowledge sharing, the exchange of ideas and resources, and the accessibility of educational materials to a wider audience. Recognizing this challenge, a viable alternative has been promoted – Open Educational Resources (OER) - that fosters openness and accessibility in the educational field. Putting forward by the United Nations Educational, Scientific, and Cultural Organization (2002), OERs represent a groundbreaking innovative approach that addresses the constraints of traditional copyright, seeking to facilitate unrestricted access to knowledge and bridge the global knowledge gap (Nasongkhla et al., 2014).

With the revolutionary power of OER, the educational landscape is currently undergoing a profound paradigm shift. This change is particularly noticeable in the field of higher education, where it signifies a break from traditional approaches to education and an embrace of a more innovative, accessible and inclusive approach to education. OER, at its heart, is fundamentally based on the notions of openness; it provides educational resources that are publicly available and openly licensed, allowing them to be used, modified, and shared without any financial or legal obstacles.

LITERATURE REVIEW

Concept of OER Adoption

The rise of technological innovations and the ubiquitous nature of the Internet have facilitated the democratization of knowledge sharing, use and re-use, enabling universal access to this valuable resource. Atkins, Brown, and Hammond (2007) articulated the concept of OER as a groundbreaking and powerful phenomenon, recognizing the global knowledge reservoir as a communal asset open to all. The core principles of open education are encapsulated in OER, advocating knowledge as a public good, and that everyone has the freedom to access, alter, and redistribute digital materials for education and research purposes without constraints (Misra, 2013).

The understanding of OER adoption is pivotal in higher education, which has been perused as a continuum extending from passive adoption (use) to active involvement (creation). The adoption of OER represents a shift in higher education in the digital age when viewed through the dual lenses of use and creation. This continuum includes different levels of involvement, such as utilizing pre-existing OER, generating new resources or adapting existing ones and then sharing such creations with the broader educational community, as emphasized by DeVries (2013). The 5R's OER framework of Wiley (2014) signifies a progression from passive stages such as retention and reuse to more active stages involving revision, remixing, and redistribution. The use and creation of OER are integral facets of adoption, essential for realizing the perks of OER (McKerlich, Ives and McGreal, 2013; Hodgkinson-Williams, Arinto, Cartmill, and King, 2017).

Faculty Attitude towards OER Adoption

Faculty members' attitudes towards OER have been the subject of several research investigations.

Prior research studies have extensively investigated faculty members' attitudes, beliefs, and perceptions on the use, creation, and integration of OER in various educational settings. A focus on relevance, quality, and accessibility has also been placed on how faculty perceive OER in comparison to traditional teaching materials. Alkhasawneh (2020); Okwu, Ogunbodede, and Suleiman (2023) Rolfe (2012) came to the conclusion that the faculty possesses a favorable academic culture, showing optimism about its benefits and a willingness to create and share resources to enhance the interactive and efficient nature of teaching and learning. Hussain, Chandio, and Khan Sindher (2013) observed that academics acknowledge the significance of OERs in promoting higher education, by granting access to a wide range of knowledge, facilitating innovative research practices and instructional experiences. Bond, Huddleston and Sapp (2021); Zhang and Li (2017) have noted that OER offers relative benefits and compatibility with other resources, having

intellectual depth similar to conventional textbooks, and as Kimmons (2015) highlighted their enhanced value in addressing specific contextual demands through adaptability, remixability, and modifiability. In addition to being helpful and sustainable, OERs are efficient in terms of cost and focus on improving student learning and achievement (Prisco, 2016). Studies have demonstrated that the integration of OER into teaching practices has resulted in enhanced learning outcomes for students and increased efficacy for teachers (Jhangiani et al., 2016; Ozdemir and Bonk, 2017). Kugamoorthy and Rajini (2017) observed that the use of ICT and OER in pedagogical strategies boosted instructors' ability to deliver more efficient higher learning, facilitate better collaboration with colleagues, and exchange more efficient lesson plans and resources. Forgette (2020) indicated that even while teachers were making use of OER in their courses as supplementary materials, they perceived OER as increasing classroom flexibility and student engagement when combined with technology.

Critical Analysis

The aforementioned literature reviews explored the adoption of OER in higher education, emphasizing its rise as a global research area, and paving the way for promising new avenues of inquiry. While several research has been conducted on the topic of OER adoption in developed nations, each study focuses on a distinct aspect of the phenomena. Previous studies in India predominantly examine OER adoption among faculty from the fields of engineering, arts, and science fields (Karalmarx and Lakshmi, 2021; Munisamy and Sivaraman, 2017), overlooking faculty members from social science backgrounds (Kumar, Baishya and Deka, 2021). Concerning the faculty of Humanities and Social Sciences, there is a paucity of research available in the North-East region of India. The cornerstone that supports the success of OER is how faculty perceive it. However, none of the existing studies is comprehensive enough to take into account the perspectives of both OER users and OER creators. Hence, this study endeavored to reduce this gap by taking into account the viewpoints of OER developers and users. The adoption of OER in Indian higher education institutions is still not well understood in light of all these shortcomings. If this is true, it is necessary to overcome the limitations that have been identified; otherwise, the effective adoption and long-term sustainability of OER will not be attainable.

Objective of the Research

To study the faculty attitude towards the adoption of OER in the higher educational institutes of North East India.

To delve into the perceptions of OER users and OER creators regarding the adoption of OERs in higher education settings.

METHOD

Research Design and Method

Using a mixed-method research design, this study set out to investigate the attitude of faculty members towards the adoption of OER in higher education institutions across North-East India. The study employed a convergent parallel mixed research design, which involved the integration of quantitative and qualitative data-gathering methods to conduct an extensive investigation of the phenomenon (Creswell & Plano Clark, 2017). Subsequent to these, a descriptive survey method has been adopted to gather data from faculty members in an effort to precisely and accurately determine the current status of the phenomenon.

Participants

The research population consisted of 442 faculty members (holding the positions of Professors, Associate Professors, and Assistant Professors) from the Humanities and Social Science disciplines at 8 central universities of North-East India, during the year 2022. Using stratified random sampling based on uniformity of department and academic rank, a sample of 221 faculty members had been selected, representing 50% of

the entire population. It includes faculty members from departments such as Education, Sociology, Political Science, Mass Communication, History, English, and Hindi across all 8 central universities of North-East India. Table 1 provides an overview of the overall characteristics of the research sample.

Table 1. Demographic Profile of the Sample

Sample Description based on Gender	
Male	128
Female	93
Total	221
Sample Description based on Academic Rank	
Professor	43
Associate professor	44
Assistant professor	134
Total	221
Sample Description based on Teaching Experience	
1-5 year	43
6-10 year	77
More than 10 year	101
Total	221

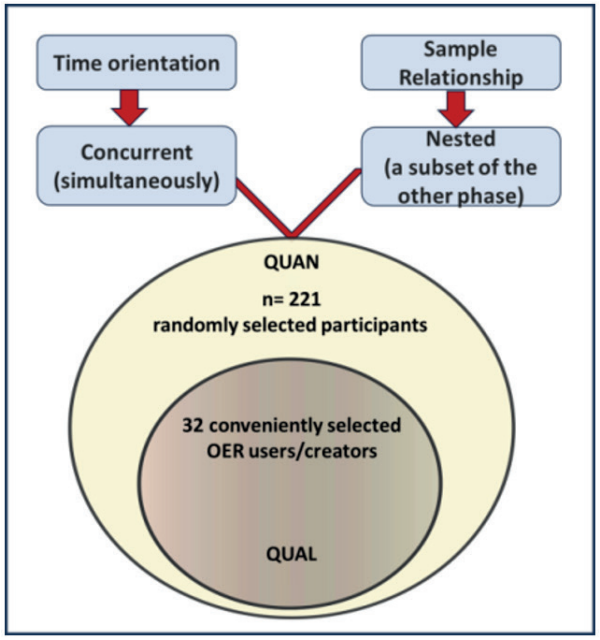


Figure 1. Mixed Method Sampling Design

Concurrent nested sampling has been applied, wherein the quantitative and qualitative stages were carried out concurrently (shown in Figure 1). In this design, the samples for the qualitative phase are nested within the quantitative phase of the investigation (Mertens, 2010; Onwuegbuzie and Collins, 2007).

For the quantitative phase, a multistage sampling technique has been adopted dividing the population into two strata based on department homogeneity and faculty academic rank. For the second phase which is the qualitative phase of the study, the researcher conveniently selected those OER users and OER creators who consented to take part in the interview session. Figure 2 and 3 present a complete overview of the sample design.

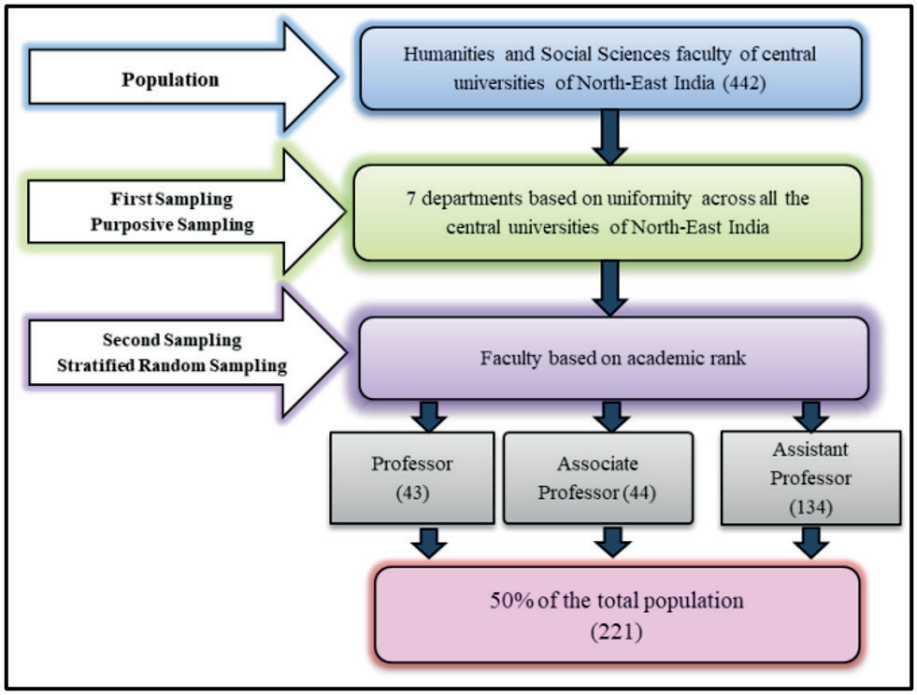


Figure 2. Sampling design for the Quantitative phase of the study

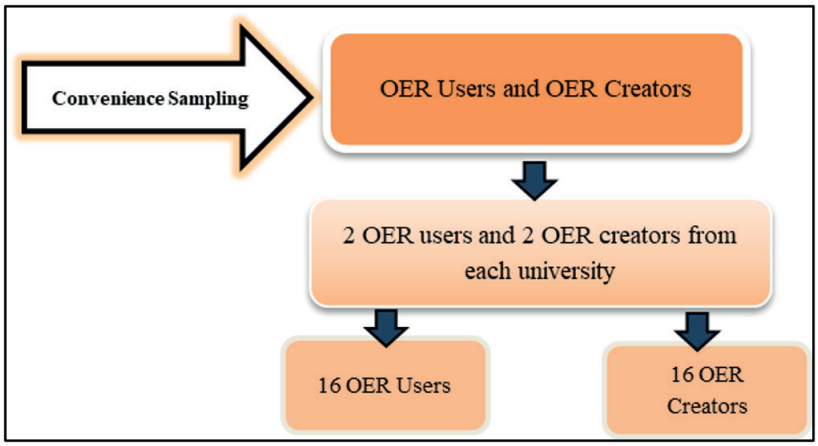


Figure 3. Sampling design for the Qualitative phase of the study

Instruments and Procedures

A self-constructed 5-point Likert scale, Teacher OER Attitude Scale with scores ranging from "Strongly Agree" to "Strongly Disagree" from 5 to 1 for positive items and from 1 to 5 respectively for negative items to measure the attitudes of university faculty toward the adoption of OER has been used to collect data for quantitative phase. Initially, the Teacher OER Attitude Scale, comprising 49 statements, was pilot-tested with 30 faculty members from the Humanities and Social Science disciplines at Tezpur Central University. Responses were categorized into high and low scorers, and items with a point-biserial correlation coefficient (Rpbi) and discrimination index (DI) higher than 0.20 were retained, following guidelines from Ebel and Frisbie (1991) and Kimpton and Harnisch (2008). Finally, the scale consists of thirty-seven (37) items categorized into five dimensions: attitude toward the use and creation of OERs, attitude towards sharing of OERs, attitude towards the use of OER for professional development, attitude towards open licenses and CC licenses and attitude toward accessibility of OERs. The scale underwent thorough validation procedures, involving expert evaluation to ascertain face validity and the use of Lawshe's CVR formula to establish content validity, yielding a notable CVI (Content Validity Index) value of 0.93, thereby confirming its

validity. The Cronbach's alpha and Split-half correlation coefficient values for the scale are 0.89 and 0.88, which indicates that it is highly consistent and reliable. Standardised criteria for assessing attitudes towards OER adoption were established using Z-scores. The interpretation intervals are as outlined below: Z-scores ranging from +1.77 and above indicate "Extremely High Positive"; +0.59 to +1.76 as "Highly Positive"; -0.58 to +0.58 indicate a moderate or neutral attitude; -0.59 to -1.76 indicate as low negative attitude, and -1.77 and below indicate an extremely low negative attitude.

In order to gain deeper insights into OER users and OER creators perspectives on OER adoption, a semi-structured interview schedule was prepared with expert feedback incorporated for clarity and validity. One of the key questions, *"How do you perceive the use of OERs in the higher education sector? Please explain*" seeks to assess their percption towards OER adoption.

Data Collection and Analysis

From March to November 2022, the researcher carried out the data collection process in two distinct phases across the eight central universities of North-East India. These phases involved both quantitative and qualitative data collection as part of a concurrent nested sampling design.

Stage 1: Quantitative Data Collection and Analysis

For the quantitative phase of data collection, the OER teacher attitude scale was distributed to all the samples of the study. After collecting the responses, data was analyzed using the Excel software package. In addition to descriptive statistics, Percentages, Frequency, Mean, and Standard Deviation (S.D.) have been used for analyzing quantitative data therein.

Stage 2: Qualitative Data Collection and Analysis

The qualitative phase involved conducting interviews exclusively with faculty members who voluntarily agreed to participate with each session lasting between 20 to 30 minutes. Using the NVivo software, the researchers used the six-step framework proposed by Braun and Clarke (2006) for thematic analysis the widely used qualitative data analysis approach. The first step is a thorough review of the transcripts to understand participants' perspectives. Next, codes were created to denote important passages, which allowed for the identification of broad themes and subthemes. All themes were carefully reviewed and refined to ensure they were in accordance with the research objectives. Lastly, the researchers presented a clear and precise summary of the themes, supported by evidence from the data.

Ethical Considerations

To ensure ethical standards and maintain the integrity of the research, the researchers obtained informed consent from the participants prior to data collection and recorded interviews only after prior approval. To ensure the anonymity of participants, the participants involved in the interview session were assigned pseudonyms (P1, P2, P3….), upholding privacy and confidentiality guidelines (Marshall and Rossman, 2016).

FINDINGS

Descriptive Statistics

The descriptive statistics provided in this section provide significant insights into the prevalent attitudes among faculty members toward OER adoption. According to the data presented in Table 2, it is apparent that among the 221 faculty members from higher educational institutions in North-East India, a significant proportion of the faculty members, specifically 49% (N=109), exhibit a moderate level of attitude towards the adoption of OER. Subsequently, the study revealed that 23% (N=51) of the faculty members display a highly positive attitude towards the adoption of OER, whilst 19% (N=42) demonstrate a low negative

attitude towards the adoption of OER. However, a few 5% of participants (N=11) possess an extremely high positive attitude towards the adoption of OER and a mere 4% of participants (N=08) show an extremely low negative attitude towards the adoption of OER.

Table 2. Showing the Level of attitude towards the adoption of OER

Range of z-Scores	F	%	Interpretation
+1.77 and above	11	5%	Extremely High Positive
+0.59 to +1.76	51	23%	Highly Positive
-0.58 to +0.58	109	49%	Moderate or Neutral
-0.59 to -1.76	42	19%	Low Negative
-1.77 and below	08	4%	Extremely Low Negative
TOTAL	221	100%	

Despite the general observation of a moderate attitude towards OER adoption among faculty, it is important to gain further insight into dimension-wise item analysis of faculty members' attitudes towards the adoption of OER. For this, each statement's mean and standard deviation were calculated. The interpretation of the mean score is guided based on criteria laid down by earlier studies (Alston and Miller, 2001; Kotrlik and Redmann, 2009; Veach, 2021) as shown in Table 3:

Table 3. Level of Mean Score Interpretation

Range of mean Score	Descriptive Equivalent	Interpretation
4.50 - 5.00	Strongly Agree	Extremely High Positive Attitude
3.50 - 4.49	Agree	Highly Positive
2.50 - 3.49	Neutral	Moderate attitude
1.50- 2.49	Disagree	Low Negative
1.00 - 1.49	Strongly Disagree	Extremely Low Negative Attitude

Dimension 1: Attitude toward the use and creation of OER

Table 4. Dimension 1: Attitude toward the use and creation of OER

Statements	Weighted Mean	S.D.	Interpretation
I believe the creation of OER will help me in the process of promotion.	3.76	3.37	Highly Positive
I believe by creating OER, will raise my reputation.	3.55	3.17	Highly Positive
I am hesitant about using others' materials.	3.73	3.31	Highly Positive
I may not be happy or satisfied with the way others modify my contents and would prefer others to use as it is.	3.66	3.28	Highly Positive
I prefer to use only such resources that were recommended to me by others.	2.79	2.50	Moderate
The use of OER can improve class interactivity and enhancement.	3.88	3.48	Highly Positive
OER can promote inclusiveness and equity in learning.	4.05	3.61	Highly Positive
I believe the use of OER textbooks is more beneficial than traditional textbooks.	3.12	2.81	Moderate
I do not want others to make money from my original works.	2.62	2.36	Moderate
OVERALL TOTAL	3.46	3.10	**Moderate**

Table 4 presents the analysis of faculty attitudes regarding the adoption of OER, focusing on the dimension labeled "Attitude towards the use and creation of OER". The overall weighted mean of 3.46 and a standard deviation of 3.10 suggest that faculty members have a moderate level of attitude towards the use and creation of OER. Significantly, respondents acknowledged that the creation of OER has the potential to support career growth (M=3.76, S.D. = 3.37) and improve their reputation (M=3.55, S.D. = 3.17); displayed no hesitation in using the material created by others (M=3.73, S.D. = 3.31) and disagreed of being dissatisfied with the adaptations of their content (M=3.66, S.D. = 3.28). Interestingly, respondents disagreed with the idea of relying entirely on recommended materials and expressed a moderate preference for autonomy in resource selection (M=2.79, S.D. = 2.5). However, faculty believed that the use of OER can improve class interactivity and enhancement (M=3.88, S.D. = 3.48); promote inclusivity and equity in learning (M= 4.05, S.D. = 3.61); perceived OER textbooks as potentially more beneficial than traditional ones (M=3.12, S.D. = 2.81) and only a few expressed their reluctance to allow others to gain profit from their work (M= 2.62, S.D. = 2.36).

Dimension 2: Attitude towards Sharing of OERs

Table 5. Dimension 2: Attitude towards Sharing of OERs

Statements	Weighted Mean	S.D.	Interpretation
I believe that educational resources should be a public good open and free to all.	4.31	3.86	Highly Positive
Sharing resources with colleagues is important in teaching and research.	4.43	3.95	Highly Positive
I believe sharing resources leads to learning new knowledge, new ideas and the production of new resources.	4.48	4.00	Highly Positive
Sharing of resources brings achievement and success in outcomes.	4.20	3.73	Highly Positive
Sharing resources makes me feel more confident.	4.09	3.65	Highly Positive
Sharing resources improve my expertise in that field.	4.07	3.63	Highly Positive
OVERALL TOTAL	4.26	3.80	**Highly Positive**

Table 5 presents faculty attitude in terms of the second dimension "Attitude towards Sharing of OERs"; revealing an overall weighted mean of 4.26 and a standard deviation of 3.80 which indicates faculty having a highly positive attitude towards OER sharing. Notably, faculty members exhibit a strong belief that educational resources are a public good, open and free for all (M=4.31, S.D. = 3.86) and view sharing of resources with colleagues as an important task in teaching and research (M = 4.34, S.D. = 3.95). They strongly agreed that resource sharing fosters new knowledge, and new ideas and creates new resources (M= 4.48, S.D.= 4.00); contributes to achievement and success (M= 4.20, S.D. = 3.73); boosts confidence among them (M= 4.09, S.D. = 3.65) and improves professional expertise (M=4.07, S.D. = 3.63).

Dimension 3: Attitude towards the Use of OER for Professional Development

Table 6. Dimension 3: Attitude towards the use of OER for professional development

Statements	Weighted Mean	S.D.	Interpretation
OER can give me global recognition.	3.71	3.30	Highly Positive
I believe OER can help me in connecting with other colleagues around the world.	4.11	3.66	Highly Positive
OER is a good way of disseminating my work to the research community and beyond.	4.18	3.69	Highly Positive
OER saves my time and effort in resource development.	3.80	3.35	Highly Positive

OER encourages me to reflect on my teaching practices.	3.92	3.47	Highly Positive
OER provides me an opportunity to improve my work by receiving feedback from others.	3.98	3.53	Highly Positive
OER will increase my citation rates.	3.95	3.50	Highly Positive
OER will improve my pedagogical practice.	3.98	3.51	Highly Positive
OER will increase my efficiency in content production.	4.03	3.56	Highly Positive
OVERALL TOTAL	3.96	3.51	**Highly Positive**

Table 6 elucidates faculty attitudes towards the use of OER for professional development with an overall weighted mean of 3.96, and a standard deviation of 3.51, which results in faculty having a highly positive attitude towards the use of OER for professional development. They generally agreed to the fact that OER can give them global recognition in their respective fields (M= 3.71, S.D. = 3.30); facilitate in establishing connections with faculty worldwide (M= 4.11, S.D. = 3.66) and serve as a good way of disseminating their work to the research community (M= 4.18, S.D. = 3.69). Moreover, they believe that OER saves time and effort in resource development (M= 3.80, S.D. = 3.35); encourages reflective teaching practices (M =3.92, S.D. = 3.47); provides an opportunity to improve work by receiving feedback from others (M= 3.98, S.D. = 3.53) and enable an increase in citation rates (M= 3.95, S.D. = 3.50); improve pedagogical practice (M = 3.98, S.D. = 3.51) and boost efficiency in content production (M= 4.03, S.D. = 3.56).

Dimension 4: Attitude towards Open Licenses and Creative Commons Licenses

Table 7. Dimension 4: Attitude towards open licenses and Creative Commons Licenses

Statements	Weighted Mean	S.D.	Interpretation
I believe open licenses require knowledge of technical skills.	3.74	3.31	Highly Positive
I believe open licenses enable me to customize the contents as per my needs.	3.68	3.24	Highly Positive
I prefer the use of Creative Commons licenses in addition to my copyright license.	3.72	3.29	Highly Positive
I think academicians should publish their works under Creative Commons licenses as teaching is a give-and-take process.	3.88	3.46	Highly Positive
Creative Commons Licenses help in creating an online community of sharing and reusing.	3.99	3.54	Highly Positive
Compared to traditional copyright, Creative Commons Licenses have made it easier to grant permission to all automatically rather than granting permission to each person individually.	3.84	3.40	Highly Positive
I think Creative Commons licenses remove my creditability and acknowledgement.	3.04	2.69	Moderate
I think Creative Commons licenses will increase the rate of Plagiarism.	3.14	2.81	Moderate
OVERALL TOTAL	3.63	3.22	**Highly Positive**

Concerning the fourth dimension, the results shown in Table 7 illustrate faculty attitudes towards open licenses and Creative Commons Licenses, indicating an overall weighted mean of 3.63 and standard deviation of 3.22, underscoring a highly positive attitude towards open licenses and Creative Commons Licenses. Faculty agreed that open licenses require knowledge of technical skills (M= 3.74, S.D. =3.31) and enable them to customize the contents as per their needs (M= 3.68, S.D. = 3.24). However, it has been reflected that a substantial proportion prefer the use of Creative Commons licenses alongside traditional copyright licenses (M= 3.72, S.D.= 3.29) and considered that they should publish their works under Creative Commons licenses (M= 3.84, S.D. = 3.41). Faculty believe that Creative Commons licenses help in creating

an online community of sharing and reusing (M= 3.99, S.D. = 3.54) and make it easier to grant permission without asking as compared to traditional copyright (M=3.84, S.D. = 3.40). Despite this, faculty members were concerned about whether Creative Commons licenses remove their creditability and acknowledgement (M=3.04, S.D. = 2.69) and increase plagiarism rates (M=3.14, S.D. = 2.81).

Dimension 5: Attitude toward Accessibility of Open Educational Resources

Table 8. Dimension 5: Attitude toward accessibility of Open Educational Resources

Statements	Weighted Mean	S.D.	Interpretation
Searching for OER is a time-consuming activity	2.88	2.55	Moderate
OER can be accessed from anywhere.	3.85	3.41	Highly Positive
The use of OER does not fit my course.	3.81	3.37	Highly Positive
OER are easy to download.	3.74	3.31	Highly Positive
OER can be easily revised and remixed.	3.41	3.01	Moderate
OVERALL TOTAL	3.54	3.13	**Highly Positive**

The result of the fifth dimension 'Attitude toward accessibility of Open Educational Resources', as presented in Table 8 illustrated that the overall weighted mean is 3.54 and the standard deviation is 3.13, suggesting faculty members have a highly positive attitude towards the accessibility of Open Educational Resources. They showed a moderate attitude toward searching for relevant OER as a time-consuming activity (M=2.88, S.D. = 2.55); in contrast, they accepted that OER can be accessed from anywhere (M= 3.85, S.D. = 3.41) and can be easily downloaded (M= 3.74, S.D. = 3.31). Furthermore, faculty disagreed that the use of OER may not fit their course curriculum (M=3.81, S.D= 3.37) and moderately agreed with the opinion that OER can be easily revised and remixed (M= 3.41, S.D. = 3.01).

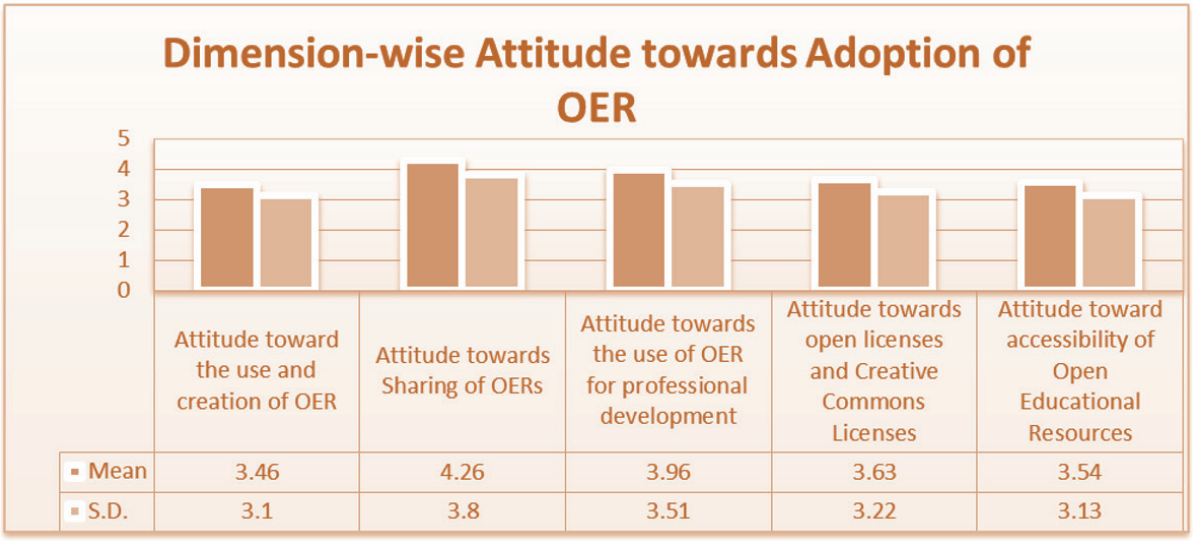


Figure 4. Summary of the overall Means and Standard Deviation of the dimensions of attitude towards the adoption of OER

Thematic Analysis

This section has explored the perspectives of OER users and creators regarding OER adoption in higher education. Using the NVivo software, the interviews have been evaluated. The analysis centred on the

overarching theme of perception, as well as several sub-codes derived from the transcribed data. A total of five categories (sub-codes) have been derived from the key concepts that surfaced. These are (a) useful academic resources (b) supplementary resources (c) open access (d) legal and ethical and (e) easy to access. Figure 5 shows how these codes helped us visualize the interviewees' (the OER users and OER creators) perspectives on the adoption of OER.

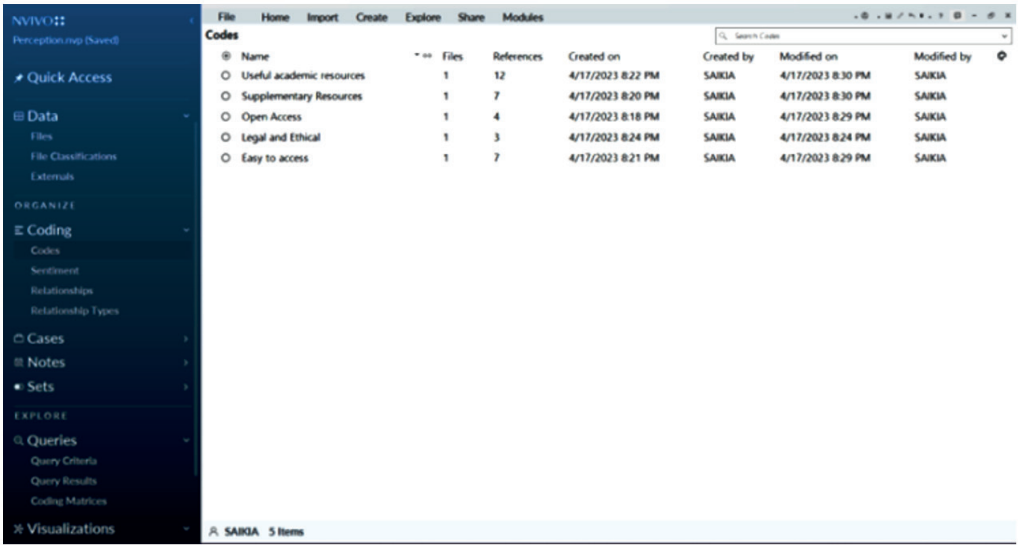


Figure 5. Subcodes of the main theme "perception" (perception of OER users and creators)

The outputs from the NVivo software indicate that most interviewees had a relatively positive perception of the adoption of OER. Auto-coded sentiment analysis revealed how OER users and creators responded to the adoption of OERs in the higher education sector. This is apparent in Figure 6 below.

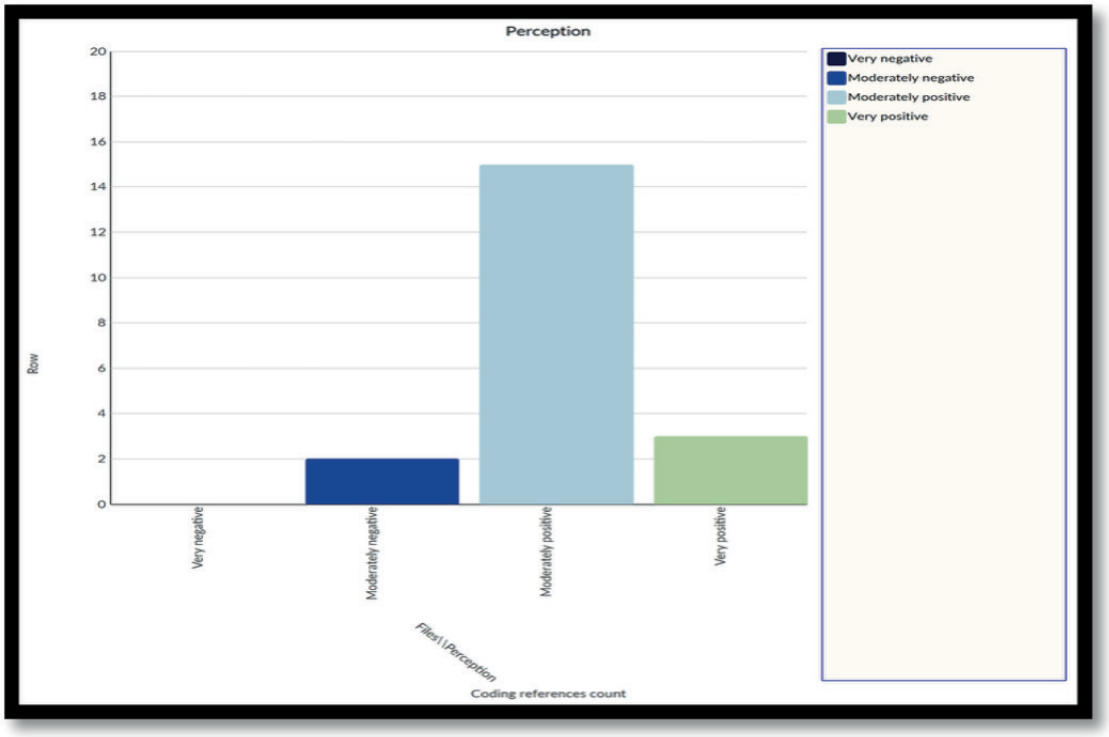


Figure 6. NVivo Auto-coding sentiment analysis of Coding Reference Graph of faculty members' (OER users and OER creators) responses towards OER adoption

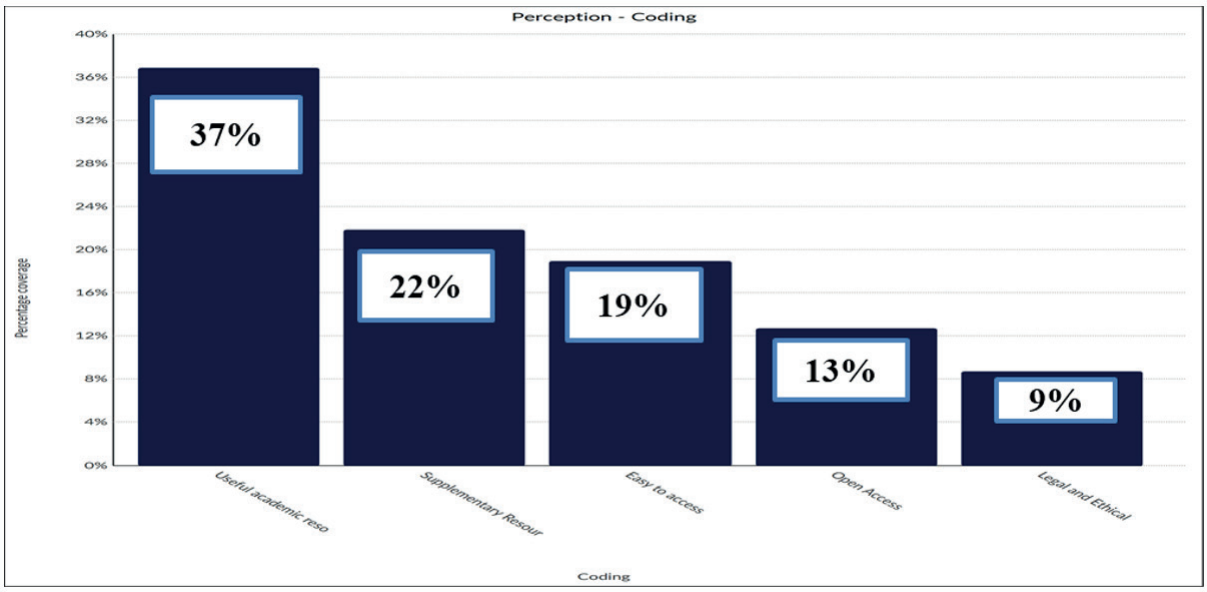


Figure 7. Percentage Coverage of the sub-codes emerged from the main theme "Perception"

A percentage summary of the perspectives of OER users and creators regarding the adoption of OER is presented in Figure 7. Following the results of the interviews, 37% of the participants held the opinion that OER is a valuable academic resource. Some of the remarks that provide support for this argument are as follows:

> *"In this age of technology, it is not very simple for everyone to gain access to hard print materials, and in the midst of this COVID pandemic, it is obvious that open educational resources are helpful in the teaching and learning process of the institution" (P9).*
>
> *"Open educational resources are an excellent educational movement. The practice should be encouraged and recognized in the realm of higher education. A culture that encourages the sharing of resources should be present" (P11).*
>
> *"Teachers have access to a valuable asset in the form of open educational resources. They offer a connection to a network of other professionals who have produced informative information in my area of concern" (P22).*

Next, 22 % of interviewed faculty considered OER to be supplemental materials, as seen by their comments:

> *"I have benefited tremendously from Open educational resources, and I have utilized it by downloading materials and storing them in my repositories, reusing it, and adding it to the stock of study material that I bring to my classroom" (P2).*
>
> *"If used as supplemental materials, I believe that open educational resources could be something that would make it easier for students to interact in the classroom. Because they are distributed under Creative Commons Licenses, these may be easily and are openly available. Furthermore, no authorization from anyone is required in order to modify them in any way" (P29).*

Easy to access OER discovered as another emerging sub-code. 19% of the participants stated they envisioned OER adoption as a way to gain access to resources that were adaptable, flexible and easy to use. This has been addressed in a variety of cases:

> *"Open educational resources can be easily accessed through various online channels, making it convenient for both students and teachers to use" (P6).*
>
> *"The idea of open educational resources can be accessed at any time and place. It is not necessary to physically go to a location in order to obtain access to the resources" (P10).*

Less than one-fifth of respondents (13%) viewed OER as open access which is openly available in online format. As some of the faculty members commented that-

"Open educational resources are any resources that can be found on a website and that have been made available on the internet for open access" (P1).

"Open educational resources are resources prepared learners. Anyone who wishes to access the materials can utilize them for teaching which is free and open access, as they are protected by Creative Commons License" (P26).

Further, just 9% of interviewed faculty advocated OER adoption because they believe it is legally and ethically acceptable. This is supported by comments like:

"It is a unique opportunity that legally and ethically allows us to adapt other's resources" (P13).

"When it comes to asking permission to use content protected by intellectual property rights, I find the process rather awkward. In this regard, creative commons and open educational resources have been of great assistance to me in that they enable me to freely, openly, and lawfully adapt the work of others" (P15).

DISCUSSIONS AND CONCLUSION

This research study intends to gauge faculty members' attitudes toward the adoption of OER in higher educational institutes in North-East India. The descriptive statistics revealed that nearly half of the faculty members (49%) showed a moderate level of attitude towards the adoption of OER. Complementing these quantitative findings, qualitative insights suggest that faculty members harbour a moderately positive outlook regarding OER adoption. They view OER as valuable supplementary academic resources that are readily accessible and openly available, all while adhering to legal and ethical standards. To give a full picture of how faculty perceiveOER, Figure 8 is a joint display table that combines quantitative and qualitative results:

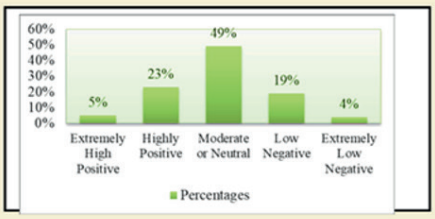
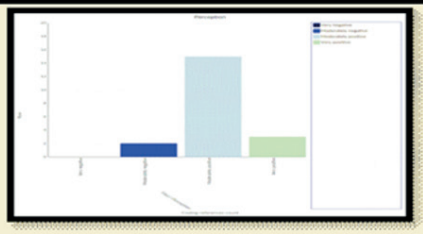
QUANTITATIVE RESULT	QUALITATIVE RESULT
	
Percentage analysis	N-Vivo Analysis
Faculty were seen as having a moderate attitude towards the use and creation of OER with a weighted mean of 3.46 and a standard deviation of 3.10.	"If used as supplemental materials, I believe that open educational resources could be something that would make it easier for students to interact in the classroom".
Faculty have a highly positive attitude towards the sharing of OERs, as indicated by the overall weighted mean of 4.26 and the standard deviation is 3.80.	"Open educational resources are an excellent educational movement. The practice should be encouraged and recognized in the realm of higher education. A culture that encourages the sharing of resources should definitely be present".
Faculty have a highly positive attitude towards the use of OER for professional development, as indicated by the overall weighted mean of 3.96 and standard deviation of 3.51.	"Teachers have access to a valuable asset in the form of open educational resources. They offer a connection to a network of other professionals who have produced informative information in my area of concern".
Faculty have a highly positive attitude towards open licenses and Creative Commons Licenses, as indicated by the overall weighted mean of 3.63 and the standard deviation of 3.22.	"When it comes to asking permission to use content protected by intellectual property rights, I find the process rather awkward. In this regard, creative commons and open educational resources have been of great assistance to me in that they enable me to freely, openly, and lawfully adapt the work of others".
Faculty have a highly positive attitude towards the accessibility of Open Educational Resources, as indicated by the overall weighted mean of 3.54 and the standard deviation is 3.13.	"Open educational resources can be easily accessed through various online channels, making it convenient for both students and teachers to use".

Figure 8. Joint Display Table Presenting Quantitative and Qualitative Results

These findings are consistent with prior research suggesting a generally positive stance towards OER adoption (Zaidi, Amir and Bhatia, 2022; Magro and Tabaei, 2019; Madiba, 2018; Mukhopadhyay, Chander and Kumar, 2018). Conversely, it is important to note that there have been very few studies in the literature that have found faculty members to be hostile towards OER use and creation (Akter and Mahbub, 2020). Given that the majority of faculty members' were moderately impressed with the adoption of OER, this could be due to the increasing recognition of the importance of ICT and OER in today's higher education. The use of OER is particularly crucial in response to the challenges presented by the COVID-19 pandemic since it provides an alternative to physical printed resources that may be inaccessible during this era of widespread disease. This came to light through the analysis of qualitative data as well. Supplemental educational resources beyond textbooks are in high demand these days as an avenue for faculty to meet the growing need for instructional support and customizing the content to meet the specific needs of their pupils (Tang, Lin and Qian, 2021).

Furthermore, both quantitative and qualitative findings highlighted OER's role in career advancement and professional networking. OER enables faculty to collaborate and network with other professors or subject matter experts to create excellent materials, leading to academic and professional growth (Joshith and Ashalatha, 2019; Kiran, 2017). They see OER as a 'resource hub or platform' that would allow them to progress professionally (Pande, Singh, Intaratat and Mythili, 2019). OERs provide faculty with a real-world platform to reflect on and improve their teaching methods, create and refine course materials, that encourage a spirit of shared responsibility, and empower themselves professionally (Jose, 2022). It is worth mentioning that when new materials are designated as OER with a focus on varied communities' languages and cultures, it aids faculty in gaining global recognition and establishing a reputable standing for their work (Kumar, Baishya, & Deka, 2021; Mishra & Singh, 2017). Faculty view OER as positively impacting student engagement in the classroom, as well as increasing inclusivity and diversity in the learning environment (McGreal, 2017). It is believed that OER can augment student involvement in the classroom by incorporating digital resources with traditional instructional materials (Tang, 2020).

Faculty members' moderate stance on OER could be explained, by their belief that these materials belong to the public domain and should be made available to all students (Verschraegen and Schiltz, 2007; Tosato, Arranz and Rubia Avi, 2014); emphasizing the importance of sharing knowledge and resources as a shared public knowledge (Yu, Hu, Li and Xiao, 2022). The faculty members firmly believed that the act of sharing resources is a crucial aspect of both teaching and learning, as well as the creation of new resources and the exchange of those resources with others. Torres, Boaron and Kowalski (2017), Cronin (2017), and Santosh (2017) highlighted how sharing OER provides a varied range of knowledge acquisition opportunities and aids them in acquiring new skills and refining existing knowledge (Kim, 2018). Most faculty believe that the academic community should step up and ensure that all students have equal free and open access to educational resources (Krelja Kurelovic, 2016). Faculty stated that they have grown professionally through engaging with and contributing to OER, as it supports them in improving their content knowledge and pedagogical skills. Likewise, Murphy and Wolfenden (2013) and Kanwar, Kodhandaraman and Umar (2010) highlighted OER as a promising 'learning platform', that can enhance the quality of teachers by encouraging pedagogical change (as cited in Cobb, 2018).

While most faculty have a moderate attitude on whether using OER is more beneficial than traditional textbooks, previous research supports the idea that OER is a viable alternative to expensive textbooks for teachers (Jung, Bauer, and Heaps, 2017; Tang and Bao, 2022). Faculty members' moderate attitude towards the adoption of OER might be attributed to the flexibility it offers them in adapting and customizing materials to align with their pedagogical aims and requirements. This aspect has also been addressed in the qualitative data, indicating that the Creative Commons license allows for the reuse of content in a way that is acceptable from a moral and legal standpoint, as well as flexibility and adaption of resources to meet the demands of the intended audience, corroborating the research findings of Lantrip and Ray (2021), Fischer, et al. (2020) and Coleman-Prisco (2017). Based on the 5R's (retain, reuse, revise, remix, redistribute), OER offers teachers greater flexibility in customizing the content to meet the needs of individual students than traditional textbooks (Delimont, Turtle, Bennett, Adhikari, and Lindshield, 2016). On top of that, Nagashima and Hrach (2021) discovered that teachers perceived the adoption of OER as a catalyst for improving their instructional strategies, as it grants them autonomy over the materials and the ability to personalize them.

In conclusion, over the past two decades, the OER movement has experienced substantial growth with a multitude of initiatives and organizations dedicated to its advancement and dissemination. Consequently, the adoption and approval of OER have emerged as an important milestone in the realm of higher education. The present trend of transitioning towards OER adoption has been sparked by the recognition of OER's potential to address important issues such as rising textbook prices, limited access to educational materials, and the need for innovative pedagogical approaches. As a result of this evolution, education may become more inclusive, accessible, and flexible to suit the requirements of both faculty and students (UNESCO, 2019; McGreal, 2017; Kanwar and Mishra, 2018). However, the effective adoption of OER in the higher education system depends upon understanding and addressing the attitudes of faculty members, administrators, policymakers, and universities towards these resources. The present research has ascertained that a significant proportion exhibit a moderate attitude toward the adoption of OER. This has yielded optimistic results, indicating that a great number of faculty have expressed a positive outlook on the adoption of OER in the near future.

RECOMMENDATIONS

For Decision-Makers and Policy-Makers

1. Ensure that universities and academics have the resources they need to successfully adopt OER by establishing clear policies at the national and institutional levels.
2. Take proactive steps to improve the necessary infrastructure and internet service accessibility and this would require a coordinated effort of all stakeholders to identify and address the underlying factors that contribute to poor internet connectivity, such as inadequate bandwidth, outdated equipment, and limited coverage.
3. Provide funding and infrastructure to establish fully equipped recording studios and Educational Multimedia Research Centres (EMRCs) within academic institutions. These facilities will enhance the creation, curation, and distribution of high-quality OER materials. Setting up such infrastructural facilities ought to be considered as a standard structure of educational institutions.
4. Provide financial aid and incentives, such as certificates, National OER awards (similar to National ICT awards for school teachers by the MoE in India) and public recognition, to encourage universities and individuals to contribute to OER creation.

For Academics

1. Need to participate in professional development programs that aim to improve faculty digital competence and in specialized teacher training programs focusing on copyright and open licensing to address faculty concerns related to these matters.
2. Encouraged them to contribute their knowledge to repositories and facilitate international collaboration with other institutions and OER advocacy groups to raise awareness about OER and exchange successful OER strategies.

For Researchers

1. Conduct research to investigate the involvement of educational administrators and librarians in the implementation of OER, as well as the factors that impede or facilitate the integration of OER within academic institutions.
2. Study the long-term effect of OER on teaching-learning environments at different educational levels and fields of study and in developing the professional skills of faculty members.

For OER Creators

1. Prioritize the creation of OER with a focus on quality, use, and adaptability to meet the diverse needs of the learners and academics of various disciplines.
2. Ensure that OERs continue to be a valuable resource for teaching and learning, by incorporating feedback mechanisms from faculty as well as learners to improve the usability, accessibility, and relevance of these materials.

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