

BENEFITS AND BARRIERS TO OPEN EDUCATIONAL RESOURCES (OERS): PRESERVICE TEACHERS' PERCEPTION

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ABSTRACT

The present study intended to investigate preservice teachers' perception towards the benefits and barriers to OERs in their teaching-learning experiences and in general, as well as to compile their suggestions for maximising the benefits and minimising the barriers to OERs. Data was collected by administering structured questionnaire on preservice teachers at Jamia Millia Islamia. The findings indicated that majority of the participants agreed about the benefits of OERs, indicating a favourable attitude toward the adoption and usage of OERs. But there were few participants who reported barriers to OERs in their teaching-learning experiences. The study also highlighted various suggestions gathered to improve the benefits and reduce the barriers to OERs through various initiatives and provisions to encourage preservice teachers to develop and share their teaching materials, as well as to promote the use of OERs during teaching deliberations.

Keywords: Open Educational Resources (OERs), Preservice teachers, Perception, Benefits, Barriers

INTRODUCTION

In higher education, OER has become an essential component (Mulder, 2015). It has emerged as one of the most innovative techniques, as well as the most cost-effective strategies, for improving the quality of educational offerings by developing optimal use of accessible resources (CEMCA, 2017). OERs are considered to have the potential of transforming teaching and learning methods in all educational contexts, as well as to shorten the time it takes to develop courses and services. It also promotes the exchange of knowledge, conserve and disseminate indigenous knowledge and improve the quality of education at all levels (Kanwar et al., 2010). According to Butcher (2011), preservice teacher can take benefit from OERs because they can, (i) have access to global content that can be un-restrictedly localized, (ii) have more learning resource options, and (iii) make inclusive learning communities.

Because of its potentials and possibilities, open educational resources have become one of the primary research areas for academicians and a major challenge for governments. Kimmons (2015) discovered that OER aids in the resolution of pedagogical, economic, and professional difficulties throughout teacher education while also recognising barriers at the macro, local, and personal levels. According to Misra (2014), future educators' interest, comprehension, and likelihood of using OER in their careers may be enhanced if these principles are taught to them throughout teacher training. According to SPARC (n.d.), OER has limitless potential to improve teaching and learning since it provides access to additional high-quality options. Lane (2010) reported that OERs help to increase learning design and innovation as they can be adapted and adopted easily. Furthermore, Rolfe (2017) stated that OERs provide teachers with access to a wider range of pedagogical techniques, which can lead to improved teaching practises. According to Atenas and Havemann (2014), teachers' creativity is enhanced by reusing and remixing OER since they are pushed to reconsider their teaching and collaborate for resource review.

Even though the OER movement is gaining traction throughout the world, with more and more institutions and academics showing an interest, there are still many barriers that need to be addressed. Some of the barriers that

must be overcome if educational institutions use Open Educational Resources (OERs) are inadequate institutional support, scarcity of technical instruments, users' lack of skills and time etc. (Kumar, 2019). Some of the hurdles and problems that preservice teachers may experience while accessing open educational resources (OERs) includes, insufficient digital proficiency and technology knowledge, a lack of hardware and technological infrastructure to access OERs in teacher education institutes, lack of expertise or training for creating and deploying high-quality content, lack of faith in quality. Also, the time restrictions frequently make it hard to locate adequate resources (Sawyer & Myers, 2018). Luo et al. (2020) stated OER as instructional tools might be difficult to adopt, but when properly planned, they can be beneficial in fostering positive learning outcomes.

CONTEXT OF THE STUDY

The research was carried out at central university of India, i.e., Jamia Millia Islamia. It is located in the national capital region of Delhi and accredited by NAAC under category 'A'. This prestigious university offers various teacher training programmes in the Department of Teacher Training & Non-Formal Education (Institute of Advanced Studies in Education) that includes D.El.Ed., B.Ed. in General, B.Ed. in Special Education, B.Ed. in Nursery Education) etc. Out of these courses, students from D.El.Ed. programme were chosen for this study. The Diploma in Elementary Education (D.El.Ed.) is a two-year professional teacher education programme that aims to prepare preservice teachers to teach from classes I to VIII, i.e., elementary level of education.

NEED FOR THE STUDY

Ever increasing use of information and communication technology changes the educational system (Zaidi & Bhatia, 2020). As the global usage of open educational resources (OER) grows, barriers and advantages are the major concerns among students, teachers, and institutions (Henderson & Ostashevski, 2018). The researchers reviewed various similar papers because the goal of this study was to look into the benefits and barriers of using open educational resources. Bliss et al. (2013) found that the cost of textbooks paid by college students in a semester drops by approximately 80% after the adoption of open textbooks. According to Butcher and Moore (2015), open education educational resources help in lesson planning. Weller (2014) stated that OER fosters more equal access to education by serving a larger base of learners than traditional resources. Hodgkinson-Williams (2010) stated how OER can be reused in teaching-learning. According to Ozdemir and Bonk (2017), open educational resources are supportive in boosting student performance. Pounds and Bostock (2019) reported that open educational resources (OERs) have the potential to improve teaching efficiency, quality, and lower costs while also removing regional barriers to education. Tur et al. (2016) found that preservice teachers have positive attitude towards OER and want to use in their futures classrooms. So, there are several benefits of OERs, but their adoption is slow due to several issues such as assuring the accuracy and general quality of material disseminated through OER (Mishra & Kanwar, 2015). Pounds and Bostock (2019) found that lack of awareness of OERs and copyright rules, scepticism about OER quality, and technological limits in terms of adaptation and sharing are the main challenges to OERs. According to Rolfe (2012), confusion over copyright and a lack of information technology support were among the obstacles to OER adoption. Other barriers to OER adoption among college and university faculty members and across institutions is a lack of understanding of open content licencing procedures (Gurrell, 2008). Similarly, Kimmons (2015) stated that copyright is a concern among teachers, causing confusion and misunderstanding about OER licencing mechanisms. Therefore, on the basis of above studies, the researchers felt to conduct the study in Indian scenario keeping in mind the following objectives.

1. To study the benefits of OERs as perceived by preservice teachers in their teaching-learning experiences and in general
2. To study the barriers of OERs as perceived by preservice teachers in their teaching-learning experiences and in general
3. To collate the suggestions of preservice teachers' towards maximising the benefits of OERs
4. To collate the suggestions of preservice teachers' towards minimising the barriers of OERs

RESEARCH METHODOLOGY

Sample

A total of 102 preservice teachers were chosen from the D.El.Ed. programme using the convenience sampling technique. The sample was taken from all sections, namely I-Year and II-Year students of D.El.Ed (under both Hindi and Urdu mediums) from Jamia Millia Islamia.

Questionnaire

The researchers prepared a questionnaire after reviewing relevant research studies that includes Ozdemir and Bonk (2017), Okonkwo and Ikpe (2013), Bansal and Joshi (2016). They also sought permission from authors for using their items in the development of questionnaire for present study. The questionnaire had two parts as;

Part I: This part of the questionnaire was based on 5-point Likert Scale from 'Strongly agree' to 'Strongly disagree'.

- a) Total 25 questions on the perceived benefits of OERs were asked. This part was further divided into two sections as (i) 16 questions related to the benefits of OER in teaching-learning experience and (ii) 9 questions related to the benefits of OER in general.
- b) Total 22 questions on the perceived barriers of OERs were asked. This part was also further divided into two sections as (i) 12 questions related to the barriers of OER in teaching-learning experience and (ii) 10 questions related to the barriers of OER in general.

Part II: This part consisted of two open ended questions to gather suggestions of preservice teachers' towards maximizing the benefits and minimizing the barriers of OERs.

Analysis and Interpretation of Data

Collected data via google forms was then processed and analysed by calculating percentage with the help of the online spreadsheet, i.e., google sheet. Whereas the data collected under the suggestions regarding OERs was analysed through coding. All the processed data was presented in tables and graphs.

FINDINGS

The findings under each objective of the study are presented here.

Objective 1: To study the benefits of OERs as perceived by preservice teachers in their teaching-learning experiences and in general

Table 1: Responses of preservice teachers about the benefits of OERs in their teaching-learning experiences

S. No.	Statements	SD	D	U	A	SA
1	Use of OER improves lesson planning and preparation	6.9%	2.9%	15.7%	57.8%	16.7%
2	OER helps in effective content delivery	5.9%	4.9%	17.6%	52.0%	19.6%
3	Use of OER is an effective method for improving students' retention	2.9%	10.8%	29.4%	47.1%	9.8%
4	Adoption of OER at the institutional level results in financial benefits for both instructors and schools	4.9%	10.8%	21.6%	53.9%	8.8%
5	OER provides more equitable access to education by reaching a larger number of learners than traditional resources	2.9%	7.8%	22.5%	57.8%	8.8%
6	Open aspect of OER creates varied usage and adoption patterns than other online resources	5.9%	7.8%	28.4%	52.0%	5.9%
7	OER can assist teachers in improving their classroom teaching	7.8%	4.9%	13.7%	61.8%	11.8%
8	OERs accommodate students' various learning styles	3.9%	8.8%	16.7%	53.9%	16.7%
9	Use of OERs can improved the efficiency and quality of learning resources	3.9%	4.9%	18.6%	57.8%	14.7%
10	OER improve a user's understanding of a course	3.9%	6.9%	19.6%	52.9%	16.7%
11	Collaborative and participative aspect of OERs leads to materials' improvement	3.9%	7.8%	26.5%	52.9%	8.8%
12	OER makes it easier to remain up to date on technology and information	4.9%	1.0%	13.7%	60.8%	19.6%
13	OER assists in learning through the integration of formal and non-formal education	4.9%	6.9%	21.6%	57.8%	8.8%
14	Re-modification of materials in OER can improve the quality of teaching-learning	4.9%	2.0%	21.6%	58.8%	12.7%
15	OER allows expanded access to learning materials by anyone, anywhere and at any time	5.9%	3.9%	19.6%	53.9%	16.7%
16	OER promotes inclusive and equitable access to quality materials irrespective of age, physical ability or socio-economic status	8.8%	7.8%	15.7%	53.9%	13.7%
Overall		5.1%	6.3%	20.2%	55.3%	13.1%

Note: SD= Strongly Disagree; D= Disagree; U= Uncertain; A= Agree; S= Strongly Agree; OER=Open Education Resources

It has been found from table 1 that the highest majority of the participants, 61.8%, agreed that OER can assist teachers in improving their classroom teaching. Whereas the analysis revealed that 8.8% of the respondents strongly disagreed that OER promotes inclusive and equitable access to quality materials irrespective of age, physical ability, or socio-economic status. Meanwhile, 19.6% of respondents are uncertain whether OER allows expanded access to learning materials by anyone, anywhere and at any time or not. 58.8% of preservice teachers agreed that re-modification of materials in OER can improve the quality of teaching-learning. From the above table, it has also been disclosed that some of the participants (28.4%) registered their uncertainty about the statement that open aspect of OER generates varied patterns of usage and adoption than other online resources. Whereas 19.6% of the preservice teachers strongly agreed that the use of OER helps in effective content delivery and that OER makes it easier to remain up to date on technology and information, 60.8% also agreed to the same.

The overall findings of the collected data revealed that the majority of preservice teachers (55.3%) agreed and 13.1% of them strongly agreed on all the 16 statements established as perceptions about the benefits of OER in teaching-learning experiences. Whereas 20.2% of the participants showed their ambiguity and obliviousness about the benefits of the OERs. Meanwhile, 6.3% of the respondents disagreed over the benefits of OER as implied through the statements, where 5.1% preservice teachers showed strong disagreement over the stated benefit of OERs in teaching-learning experiences.

Table 2: Responses of preservice teachers about the benefits of OERs in general

S. No.	Statements	SD	D	U	A	SA
1	OER allows flexible and quality education	6.9%	6.9%	18.6%	56.9%	10.8%
2	OER content can be examined online as well as downloaded if needed	5.9%	4.9%	13.7%	56.9%	18.6%
3	OER allows open access to knowledge that may be utilised to make life-changing decisions, eventually leading to societal improvement	3.9%	9.8%	16.7%	56.9%	12.7%
4	OER enables users to examine their understanding of a particular topic through self-assessment tests	5.9%	6.9%	16.7%	57.8%	12.7%
5	OER assists in meeting the increased demand for secondary and higher education	6.9%	6.9%	23.5%	52.9%	9.8%
6	OER facilitates online interaction among other members of the institution	4.9%	9.8%	20.6%	52.0%	12.7%
7	OER promotes easy access to low cost and quality educational materials	6.9%	6.9%	18.6%	55.9%	11.8%
8	OER has provisions for uploading educational materials by teachers or experts	5.9%	6.9%	23.5%	52.0%	11.8%
9	OER enable active and independent learning	3.9%	10.8%	26.5%	48.0%	10.8%
Overall		5.66%	7.73%	19.83%	54.36%	12.42%

Note: SD= Strongly Disagree; D= Disagree; U= Uncertain; A= Agree; S= Strongly Agree; OER=Open Education Resources

As presented in above table 2, the analysis of the data exhibited that 10.8% of the respondents disagreed that OER enables active and independent learning through online discussion forums. Whereas 6.9% participants disagreed that OER allows flexible and quality education, including easy access to low cost and quality educational materials. Moreover, majority of the participants (56.9%) agreed on the statement that the OERs enables free access to information that can be used to make decision affecting ones lives that ultimately leads to progress of the societies. Whereas 57.8% preservice teachers also registered their agreement on online self-assessment tests, which allow students to test themselves on a certain topic as the perceived benefits of OERs. On the other hand, 23.5% of the respondents were uncertain about scope of OERs in assisting in meeting the increased demand for secondary and higher education and the provisions for uploading special writings by teachers/experts. The overall findings of the collected data indicated that the majority of the preservice teachers (54.36%) agreed and 12.42% strongly agreed with all statements as the perceived benefits of OER in general. While 19.83% of the participants showed their uncertainty and 7.73% admitted their disagreement with the cited statements.

Objective 2: To study barriers of OERs as perceived by preservice teachers in their teaching-learning experiences and in general

Table 3: Responses of preservice teachers about the barriers of OERs in their teaching-learning experience

S. No.	Statements	SD	D	U	A	SA
1	OER is ineffective in improving educational outcomes	9.8%	45.1%	14.7%	23.5%	6.9%
2	Integration of OER into the technology you use is very difficult	5.9%	43.1%	25.5%	20.6%	4.9%
3	Quality of OER is low and inadequate	7.8%	43.1%	27.5%	17.6%	3.9%
4	OERs are difficult to edit or modify	7.8%	33.3%	34.3%	19.6%	4.9%
5	OER is irrelevant to your subject area	7.8%	49.0%	20.6%	18.6%	3.9%
6	Content of OERs are outdated	7.8%	34.3%	29.4%	25.5%	2.9%
7	Nobody around you uses OERs	3.9%	48.0%	26.5%	18.6%	2.9%
8	Not sure whether you are allowed to use or modify OER	6.9%	22.5%	42.2%	20.6%	7.8%
9	OER does not offer sufficient resources in your subject	5.9%	44.1%	15.7%	28.4%	5.9%
10	It's too difficult for you to find what you're looking for in OERs	6.9%	26.5%	28.4%	24.5%	13.7%
11	It is unclear which resources considered as OERs	4.9%	25.5%	33.3%	24.5%	11.8%
12	It takes a lot of time to find, select, edit and apply OER	5.9%	22.5%	26.5%	29.4%	15.7%
	Overall	6.8%	36.4%	27.0%	22.6%	7.1%

Note: SD= Strongly Disagree; D= Disagree; U= Uncertain; A= Agree; S= Strongly Agree; OER=Open Education Resources

The above table 3 indicates that the majority of respondents (49.0%) disagreed that the OER is irrelevant to their subject areas and 48.0% disagreed that the OER is not used by anyone around them, including their peers or classmates. Also, in the analysis of the data, 25.5% agreed that the content of the OER is not current or up to date. Whereas 42.2% of preservice teachers reported that they are uncertain whether they have permission to use or modify OERs, followed by 34.3% unsure about the OER being too difficult to edit or modify. The table also shows that 9.8% of the respondents strongly disagreed that the OER is not effective at improving educational performance, where 15.7% strongly agreed that it takes too much time to find, select, edit and apply OERs. The overall findings showed that the majority of respondents (36.4%) disagreed, while 27.0% unsure and 22.6% of the respondents agreed over all 12 illustrated statements including some contrary elements, representing the barriers of OER in teaching-learning.

Table 4: Responses of preservice teachers about the barriers of OERs in general

S. No.	Statements	SD	D	U	A	SA
1	It is difficult to use OER	2.9%	30.4%	19.6%	35.3%	11.8%
2	Slow internet speed makes it hard to utilize OERs	2.0%	8.8%	22.5%	49.0%	17.6%
3	Unavailability of internet connection is an issue	3.9%	22.5%	31.4%	36.3%	5.9%
4	It is difficult to access OERs with limited or no access to a computer	2.9%	15.7%	20.6%	41.2%	19.6%
5	Inadequate knowledge on how to use OER	2.9%	21.6%	21.6%	40.2%	13.7%
6	Does not have sufficient computers related skills	2.9%	17.6%	21.6%	42.2%	15.7%
7	Insufficient knowledge on where to find the OER	4.9%	15.7%	21.6%	40.2%	17.6%
8	Do not have enough time to look for suitable resources	3.9%	12.7%	25.5%	49.0%	8.8%
9	There is a lack of technical infrastructure	2.9%	17.6%	23.5%	39.2%	16.7%
10	There is a scarcity of OERs in native languages	2.9%	10.8%	25.5%	43.1%	17.6%
	Overall	3.2%	17.4%	23.3%	41.6%	14.5%

Note: SD= Strongly Disagree; D= Disagree; U= Uncertain; A= Agree; S= Strongly Agree; OER=Open Education Resources

As per the above table 4, the most commonly agreed statements to study the preservice teachers' perception about the barriers of OERs, in general, are slow internet speeds and having not enough time to look for suitable resources (49%), inadequate knowledge on how to use OER and insufficient knowledge on where to find the OER (40.2%), scarcity of resources in the native languages (43.1%), difficulty in accessing OERs with limited or no access to a computer (41.2%). Whereas 23.5% of respondents showed their uncertainty about the lack of technical infrastructure, while (17.6%) disagreed over this. The overall findings from table 4 indicated that around (41.6%) of the preservice teachers agreed on all 10 statements, while 23.3% of the respondents uncertain about their perception of the barriers to OERs. Whereas 17.4% disagreed and 3.2% strongly disagreed with the statements representing the perceived barriers of open education resources (OERs) in general.

Objective 3: To collate the suggestions of preservice teachers' towards maximising the benefits of OERs

The data collected for the above-mentioned objective was analysed through coding of the responses. Following that, the percentage was calculated and displayed in a graph. The responses registered through the open-ended questions gave participants the freedom to share their personal and genuine suggestions on OERs.

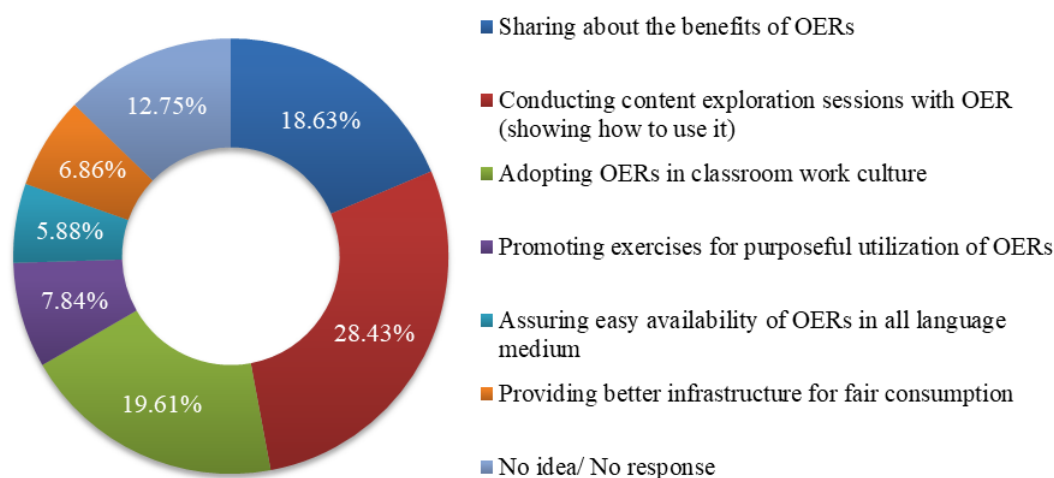


Figure 1: Suggestions given by respondents to maximise the benefits of OERs

Figure 1 indicates that 28.9% of the responses suggested conducting content exploration sessions with OERs to show preservice teachers how to use OERs, about the various types of OERs, their applications and platforms. Analysis of responses also revealed that 19.61% of the participants recommended adopting OERs in classroom work culture. So, the researchers concluded that providing initial exposure to the use and features of OERs will further motivate them to avail the benefits of OERs. One of the documented responses was that *"I can maximise benefits of OER by giving awareness to all learners through social media"*. Hence, 18.63% of the responses proposed that sharing about the benefits of OERs can help students become aware of all the attributes of OERs. 5.88% of the responses are attributing towards assuring easy access and availability of OERs in all language mediums, as one of the respondents stated that, *"To maximise the benefits of OER, OERs have to increase languages, subjects, etc."* Meanwhile, 6.86% suggested providing better infrastructure for fair consumption of resources.

Objective 4: To collate the suggestions of preservice teachers' towards minimising the barriers to OERs

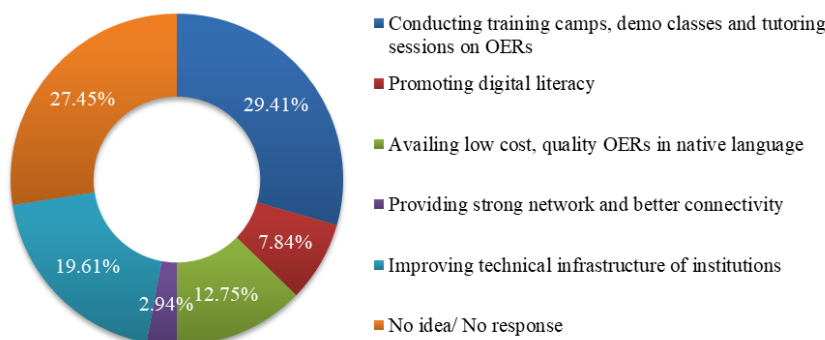


Figure 2: Suggestions given by respondents to minimise the barriers to OERs

The Figure 2 shows that 29.41% of the responses indicated that in order to minimise the barriers, it is crucial to have awareness about OERs and for that conducting training camps, demo classes and tutoring sessions on OERs can be helpful. As one of the preservice teachers registered that, *"Available content should be divided according to the need. If I search for socio-cultural theory, we get thousands of results, and it takes hours to get appropriate content according to my need. Searching difficulties should be removed. Students should be skilled at finding appropriate content"*. Above figure also indicates that 19.61% suggested improving the technical structure of institutions. Meanwhile, one of the respondents registered that, *"By availing material in Hindi language. Most students don't use OER because of language"*. Similarly, 12.75% of responses have recommended availing low cost and high quality OERs to be available in native languages. Further, analysis of the data revealed that 7.84% of the registered responses reflected upon recommending promoting digital literacy as one of the participants stated that *"computer skills must improve"*. Out of all registered responses, 27.45% respondents gave no suggestions, indicated that they have no idea or have nothing to say about it.

DISCUSSION

As this study investigated the perceptions of preservice teachers about the benefits and barriers of OERs, the results showed that majority of preservice teachers (57.8%) agreed that use of OER leads to improvement in lesson designing and planning. This finding shows coherence with Butcher and Moore's (2015) study in which they stated that the use of open educational resources (OER) helps in improving lesson preparation. So, results of this study can be helpful for effective adoption of open educational resources in teaching-learning of preservice teachers. Furthermore, 45.1% participants disagreed that OER does not improve educational outcomes and 29.4% agreed that it takes too much time to find, choose, and edit OERs. This shows similarity with Ozdemir and Bonk (2017) which revealed that although time required for searching, selecting, editing, and applying OER is the greatest hurdle in OER adoption, the use of OER is believed to enhance student performance. Preservice teachers in the present study were also unsure of which resources to be considered as OERs and agreed to various barriers including facing problem in finding relevant materials and concerns about outdated content. These results are consistent with Mishra and Kanwar (2015) who stated the issues of assuring the accuracy and general quality of material disseminated through OER. As 17.2% respondents disagreed that a paucity of technical infrastructure exists and 21.6% agreed that they have insufficient understanding on how to use OER. The findings confirm dissimilarity with Bansal and Joshi (2015) who found that the main stumbling block for their participants was a lack of knowledge on how to identify and use OERs and inadequate technological infrastructure.

CONCLUSION

This study concluded that a large majority of respondents agreed that OER assists teachers in improving their classroom teaching and makes it easier to remain up to date on technology. Most of the respondents also agreed that OER enables users to examine their understanding of a particular topic through self-assessment tests. So, it is concluded that they have recognized the benefits of OERs in the given contexts, i.e., in their teaching-learning experiences and in general. The results also showed that the majority of respondents disagreed with the stated barriers to OERs in their teaching-learning experiences, which signified the positive perception toward the adoption and use of OERs among preservice teachers. Meanwhile, most preservice teachers perceived slow internet, a lack of time to search for relevant materials, and a lack of resources in local languages as some of the major barriers to OER in general settings. Finally, it is worthwhile to state that suggestions given by preservice teachers can help the institutions and government in planning the remedial steps to remove the barriers of OER in teaching and learning.

SUGGESTIONS FOR FUTURE STUDIES

Further studies can be carried out to expand research with different populations such as with B.Ed./ M.Ed. students, in-service teachers, etc. As a part of such expansion, researchers can also explore how OER is used by preservice teachers in the other developed countries that could better engage those in the developing countries.

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