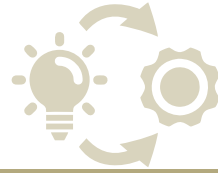


CEMCA



OER Policy Implementation and Use in Open and Distance Learning



S K Pulist



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**Commonwealth Educational Media Centre for Asia
New Delhi**

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Preface

This is an evaluative study of the OER promotional activities initiated by CEMCA in the form of capacity building and consultation for implementation of OER policy at Bangladesh Open University (BOU), Gazipur, Bangladesh; Netaji Subhash Open University (NSOU), Kolkata, India; and Odisha State Open University (OSOU), Sambalpur, India. Accomplishment of such a work needs support, guidance and help from different sources. I owe my sincere thanks to them all. At the outset, I would like to thank Dr. Shahid Rasool, Director, CEMCA for allowing me to carry out this work. He and his team have always been there to extend all help whenever required. My special thanks to Dr. Manas Ranjan Panigrahi, Programme Officer, CEMCA and Shri R Thyagarajan, Head, Administration & Finance, CEMCA who had always been there whenever I needed them. Ms. Monica Sharma has been instrumental in one way or the other during the preparation of this report. I thank her wholeheartedly for her support.

The participants in a study have an important role of sharing their perception, experiences, and ideas with the researcher which is soul of the research work. I have been fortunate enough in getting full cooperation from the participants of this study. My sincere thanks to all the participants who spared their valuable time, extended all support and participated in this study by way of sharing their experiences. I express my deep sense of gratitude to Prof. Dhananjay Joshi, Prof. A P Behera, Dr. Aerum Khan, Prof. K Srinivas, Dr. Vinod Kumar Kanvaria, Dr. Bharti Sharma, Prof. Jessy Abraham, Dr. Amarendra Pani, Prof. Biswajit Das, and Dr. Narayan Prasad Behera for extending necessary guidance for validation of tools for the study. This work could have not been possible without their support.

The anchor persons for the study Dr. Barnali Roy Choudhury, NSOU; Dr. Md. Mizanoor Rahman and Dr. AKM Iftekhar Khalid, BOU; and Dr. J K Sharma, OSOU deserve my special thanks for mobilising the participants for the survey in their own areas and handling the activity in an excellent manner. I am wholeheartedly grateful to Prof. S S Sarkar, Vice-Chancellor, NSOU and Dr. S K Mohapatra, Vice-Chancellor, OSOU for their guidance and experience sharing for the study.

I also thank Dr. Sanjaya Mishra, Education Specialist, COL, on whose work “Promoting Use and Contribution of Educational Education Resources” I have depended heavily for the current study. The survey questionnaire designed and used by him for the above study was customised and modified, and used for the current study as well.

Last but not the least, I express my gratitude towards my beloved wife Mrs. Sarita Pulist and my two cute sons Ravi and Tushar for extending their unconditional moral support in this endeavour also as always.

Dr. S K Pulist

Foreword

For equalising educational opportunities Open Educational Resources (OER) can play a crucial role. The OER, therefore, are increasingly gaining importance and drawing attention of the governments' and educational institutions. (Horizon Report, 2015). Globally various initiatives are being taken by institutions to integrate OER with the teaching and learning (Weller, Arcos, Farrow, Pitt & McAndrew, 2015). However, effective use of OER for teaching and learning requires adoption of proper OER policies, both at the national as well as at the institutional level. Institutional OER policy, in particular, is very crucial to promote best OER practices and develop robust OER repositories, which in turn will boost the higher education sector by providing quality education to students at affordable cost on anytime and anywhere basis. As defined by UNESCO, "Open Educational Resources (OERs) are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation".

The Commonwealth Educational Media Centre for Asia (CEMCA), under the aegis of Commonwealth of Learning (COL), an inter-governmental organisation, is one such organisation serving to the cause of higher education, especially the open and distance learning, by designing and supporting interventions at different levels for promotion of OER use in teaching and learning. The initiatives are taken in association with educational institutions, experts, faculty members and students at large. The CEMCA aspires that more and more institutions and organisations implement OER policies and practices to improve ODL systems and enhance quality learning opportunities particularly for marginalised communities. Within the mandate of CEMCA's Six Year Strategic Plan (2015-2021), the recent OER initiatives of CEMCA have focused on developing institutional OER policies and their implementation in three ODL institutions i.e. Bangladesh Open University, Odisha State Open University and Netaji Subhash Open University. These initiatives also include capacity building of faculty and other functionaries and development of OER repositories for easy access of students. To understand the impact of these initiatives and activities CEMCA commissioned an external evaluative study, through Dr. S K Pulist, on OER Policy Implementation and Use in Open and Distance Learning System.

I am pleased to note that Dr. S K Pulist has planned and conducted this research following a systematic methodology for collection of data and analysis to draw conclusions, bringing out significant results. The study also presents suitable recommendations, in a succinct manner, for all the stakeholders for improvements.

The work published in the book form will be useful to institutions, planners and policymakers in education system. With wider access to teachers and researchers, the book will open newer areas of research in the field of OER and ODL system. We, at CEMCA are looking forward for your feedback and suggestions to improve CEMCA's interventions in Higher Education. We believe our collective efforts will equalise educational opportunities for all irrespective of their location.

Shahid Rasool

Director, CEMCA

Executive Summary

► **Introduction**

The advancements in ICT have exerted unprecedented influence on all walks of human life. Much of the influence is visible on the methodologies, approaches and strategies to impart education as well. The Education system has witnessed a technological disruption with the extensive use of ICT more so the web, internet and now the open access content and other free educational resources. OER has emerged as enabling tools for the education system more so the open and distance learning, to expand the horizon of access to quality education for all the aspirants.

In the recent past, the OER interventions of CEMCA have focused on capacity building of the faculty and other functionaries in the three ODL institutions among others, i.e., Bangladesh Open University, Netaji Subhash Open University, and Odisha State Open University. The study is an attempt to evaluate this capacity building.

► **Objectives of the Study**

The current study seeks to evaluate the CEMCA initiatives for promotion of OER in above ODL institutions. Following are the objectives specified for the study:

- a) Study OER policy adoption and implementation;
- b) Analyse perception of faculty in use of OER and sharing of resources created by them;
- c) Explore the perception of faculty towards OER use by the students;
- d) Examine the awareness of faculty about licensing policy and sharing of resources created by them;
- e) Study the extent of use, re-use and re-purposing of OER for teaching and learning;
- f) Analyse the extent of use of OER in SLM development process subsequent to capacity building of faculty;
- g) Report the extent of sharing of resources created by the faculty;
- h) Examine the extent of use of OER in programmes already launched;
- i) Identify the issues and challenges in implementation of OER;
- j) Make recommendations to augment teaching and enrich learning experience with the help of OER.



► **Research Design**

A mixed method interpretative description approach has been used to carry out the study. The use of four different tools such as the survey questionnaire, focus group discussion schedule, interview schedule, and eContent repository datasheet has been made in the study. An analysis of the OER policy adopted by the institutions under study was also done to report the status. The questionnaire was designed for the faculty who participated in capacity building programmes in different areas of OER development, use and implementation. The multiple-choice, Likert scale and open-ended questions formed part of the questionnaire that was administered online.

► **Validation of Instruments**

A group of ten experts drawn from higher education institutions in India in OER and related areas validated the format and content of the tools to ensure internal consistency and clarity of the questions used in all the four instruments for the study. Based on the suggestions and feedback received from the expert group, the modifications were carried out in the instruments before deploying them for data collection. The relevant parts of the survey questionnaire that sought to study the perception of the participants were further analysed to seek a Cronbach Alpha score to establish internal consistency of the items.

► **Participants**

The scope of the study was restricted to these three institutions – one from Bangladesh and two from India, i.e., Bangladesh Open University (BOU), Gazipur, Bangladesh; Netaji Subhash Open University (NSOU), Kolkata, India and Odisha State Open University, Sambalpur, India. The survey questionnaires were administered on 118 participants from the three universities (BOU-36, NSOU-51, and OSOU-31).

► **Data Collection**

The data was collected with the help of the following four tools designed specifically for the study:

- a) Questionnaire
- b) Focus Group Discuss Schedule
- c) Interview Schedule
- d) eContent Repository Data Sheet

In all, 52 responses were received (BOU-20, NSOU-21, and OSOU-11) against the survey questionnaire distributed to 118 participants.

The focus group discussions were conducted at each of the open universities with a total of 32 participants (BOU-11, NSOU-12, and OSOU-9) and audio recorded for transcription purposes.

The personal interview of the head of institution in the three universities was conducted and audio recorded for transcription purpose. The transcriptions were used later to support the findings of the questionnaire data analysis.

The eContent Repository Data Sheets were collected from all the three universities and analysed.

► Data Analysis and Interpretation

As against the administration of the survey questionnaire on 118 participants, the filled in responses were received from 52 participants. The data collected through the online survey questionnaire was coded and transferred to SPSS software package for undertaking further analysis. MS-Excel was also used to tabulate the data and undertake simple statistical calculations. The objectives of the study led the analysis and interpretation of data. The responses received in the Focus Group Discussion and personal interview were also taken for analysis in the light of the objectives and sub-themes used in the study. The data received through the eContent Repository Data Sheet was analysed separately. In case of Likert scale items included in the questionnaire, the overall mean score was taken to present the inclination of the participants towards one end of the scale and the level of agreement/disagreement towards a particular statement. The frequency distribution and percentages were drawn wherever considered appropriate for presentation of data.

► Findings

1. It was noted that 32 (62%) respondents were Male and 20 participants (38%) were Female. As many as 40.38% responses had been received from Netaji Subhash Open University followed by Bangladesh Open University (38.46) and Odisha State Open University (21.15%).
2. The highest number of respondents (35%) belonged to the '31–35 Years' age group followed by the '36–40 Years' (19%) and 41–45 Years (12%). As many as 4% participants belonged to each of the '61–65 Years' and 'more than 65 Years' age groups.
3. The highest number of respondents (23%) belonged to the Social Sciences discipline followed by Humanities and Arts (21%), Management and Commerce (21%) and Science (8%).
4. The highest mean score ($M=4.58$) indicated that the institutions attached a great value to use of OER for teaching and learning. It was also accepted by the participants that the OER Policy of their institution encouraged them to use OER wherever possible ($M=4.54$). The participants found the culture of their



- institution to be favourable for use and sharing of the OER (M=4.44). They found the overall impact of adoption of OER Policy in their institution to be positive (M=4.38).
5. A huge majority of the participants affirmed (42.31% 'Agreed' and 50% 'Strongly Agreed') that the adoption of OER Policy in all the universities has a positive impact.
 6. The majority of the respondents (78.85%) reported that staff training and development, and eContent development and outsourcing were part of the OER budget in their institution. As many as 53.85% participants mentioned that software development, purchase and upgrade were parts of the OER budget followed by physical infrastructure development and purchase (50%), and hardware development, purchase and upgrade (50%).
 7. The participants firmly believed that sharing OER enhanced their personal and organisational reputation (M=4.54). They agreed that it gave them pleasure if somebody adopted/adapted their educational resources (M=4.46). The OER helped them to disseminate their ideas (M=4.40). They felt that institutions should share educational resources for free with teachers, students and other institutions (M=4.40) since the OER can fulfill the pedagogical requirements in teaching to a great extent (M=4.38). They believed that OER saved their time (M=4.35) while its use enabled the faculty to experiment with different teaching methods (M=4.35).
 8. Majority of the respondents affirmed (44.23% 'Agreed' and 26.92% 'Strongly Agreed') that participation in the capacity building workshops organised by CEMCA had a positive impact on their perception towards OER. The University-wise analysis of data made evident that 75% respondents from Bangladesh Open University, 76.19% respondents from Netaji Subhash Open University and 54.54% participants from Odisha State Open University had a positive impact of the training workshops on their perception about OER.
 9. The respondents felt that use of the OER helped the learners in improving their performance (M=4.50) and its use led to equitable access to educational opportunities for students (M=4.44). They were of the opinion that the OER helped students to search for learning resources as per their learning style (M=4.37) and, therefore, they attached a great value to use of OER (M=4.31). Since the relevant OER was already suggested by the faculty, students saved time on searching for them (M=4.29). The respondents felt that the OER enabled the students to spend lesser money on reference books and, therefore, was cost effective (M=4.29).
 10. Majority of the respondents (42.31% 'Agreed' and 53.85% 'Strongly Agreed') emphatically accepted that use of OER had helped the students in improving their performance. The University-wise analysis revealed that all the respondents (45% 'Agreed' and 55% 'Strongly Agreed') belonging to Bangladesh Open University felt that OER use helped in improving the student performance. In case of Netaji Subhash Open University, 95.23% respondents felt that use of

OER helped the students in improving their performance. Similarly, majority of participants (42.31% 'Agreed' and 53.85% 'Strongly Agreed') commented positively to this statement.

11. The analysis of the responses (N=52) revealed that the learners liked to use the following online platforms invariably in addition to their university repository to enrich their learning experience: Coursera, Edx, e-PG Paathshalla, University repository, Google Classroom, OER Commons, Scribd, blogs on the relevant subject from Google, Creative Commons, Dspace, e-Gyanagar (OSOU), Swayam, Khan Academy, University LMS, MERLOT, NROER, Schoology, UNESCO portal, YouTube for Video lectures, Wikipedia, WikiEducator, and other relevant online platforms.
12. Majority of the respondents (65.38%) felt that the learners used Google search engine in a big way. Other search engines used by the learners were FireFox (7.69%), OER Commons (5.77%), and Yahoo (5.77%).
13. The respondents reported that the learners used the OER and other online resources for the following purposes: to enhance the knowledge and skills to attempt any question; for tutorial purposes; to download M.C.Q; MOOCs; online lectures if they missed classes; getting textbooks and video lectures; learning theory chapters; preparing project; seeking reference material; getting advanced and updated knowledge of any subject; getting access to diagrams and graphics; verify an information received by them from other sources; write articles and prepare their lessons/notes; write assignments; prepare project papers; listen to audio; download images; create PPT for presentation; to get study materials and reference study materials; to build up their interest in a topic, enhance their knowledge; read books and watch videos; find reference texts, examples and easier explanations; quantitative and qualitative exploration, and assignment preparation as well as final examinations.
14. The respondents informed that the learners preferred to use the online content as text files, e-resources (self learning materials), audio and video lessons, field and research manuals, information in a scientific presentation, eBook, articles, pictures, PPT, PDF files, and images. The students were mostly looking for resources that were easily downloadable and convertible to other formats.
15. The respondents were confident that the OER policy of their University acknowledged the OER contribution made by the faculty (M=4.35). They themselves also valued the OER for use in the teaching and learning process (M=4.27). They were confident that the knowledge of Creative Commons (CC) OER Licensing Policy helped them in judiciously using the OER created by others (M=4.02). They also felt that the CC OER Licensing Policy helped the users in creating and contributing the material without losing their intellectual property rights (M=3.98).
16. As many as 46.15% respondents affirmed that their university gave preference to the OER users in faculty development schemes. Other 44.23% respondents mentioned that the faculty members involved in OER activities were given an



- appreciation letter that motivated them further to do better for promotion of OER. Quite a good number of respondents (32.69%) reported that the faculty involved with OER was given weightage in Academic Performance Indicator (API) scores that helped them in seeking next upward movement in their career.
17. Majority of the respondents had a positive experience in using the OER for Teaching purposes (M=3.87). They felt that use of OER was inbuilt in the instructional design of the programmes in their University (M=3.67). The respondents used presentation/demonstration files (M=3.56), image files (M=3.52), and text files (M=3.48) from the OER. They were able to find OER on the Web as per their requirements (M=3.44) and tried to engage the students with the help of online activities like assignments, quizzes, etc. (M=3.44).
 18. Majority of respondents (42.31% 'To a Great Extent' and 28.85% 'To a Very Great Extent') had a positive experience in using the OER for teaching purposes. Similar trend of positivity experience was visible when the data was analysed University-wise.
 19. Majority of respondents (59.62%) provided link of the OER to their learners that was downloadable from the Web. The OER content was also provided by some of the participants (40.38%) through LMS. Almost 38.46% participants provided the eContent through pen drive/CD, and in print form. Interestingly, 17.31% respondents provided the content through cloud storage while other 3.85% used social media groups and posts to disseminate the content.
 20. Majority of the respondents (78.85%) used the OER in teaching for enrichment of the learning experience of the learners. As many as 69.23% respondents used the OER for explaining a topic or concept to the learners. At times the OER was also used as additional reading material for the learners (67.31%). As many as 40.23% respondents made use of OER to provide a list of additional reading resources to the students.
 21. The respondents enjoyed using the OER for SLM development (M=3.67), rather they preferred to use OER for SLM development (M=3.56). They favoured use of image files (M=3.54), text files (M=3.50), graphics (M=3.40) and video files (M=3.40) from the OER.
 22. Majority of the respondents (55.77%) used the OER as a mix of both – in original form and after customisation. However, as many as 30.77% respondents mentioned that they used the content after customisation only, as against 13.46% who liked to use the content in its original form.
 23. Majority of respondents invariably used the OER in SLM development to enrich the learning experience of the learners (67.31%), explain the topic/content to the learners (61.54%), and to provide as additional learning material (59.62%). As many as 44.23% of the respondents used the OER to provide a list of additional reading resources to the learners and self-evaluation exercises (25%) and to substantiate the argument (25%).
 24. As many as 40.38% respondents used OER as complimentary to the printed SLM as against 30.77% respondents who had used OER as supplementary to

the printed SLM for launch of the programmes. The number of respondents (19.23%) who launched fully OER based programmes was also substantial. The respondents also used OER for continuous evaluation (19.23%) and summative evaluation (9.62%).

25. The respondents not only preferred to share the content developed by them as OER (M=4.12) but also enjoyed sharing the content (M=4.06). They found reaction of their colleagues over sharing the resources as positive (M=3.65). The respondents usually shared presentation/demonstration files as OER (M=3.52) followed by text files (M=3.46) and video files (M=3.46). The other types of content shared by them as OER were graphics (M=3.35), audio files (M=3.35), images files (M=3.31), and newly created eContent (M=3.31).
26. Majority of the respondents had shared the original content (59.62%), curated content (46.15%) and re-purposed content (57.69%) less than 5 times. Similarly, some of the respondents shared the original content (17.31%), curated content (19.23%) and re-purposed content (15.38%) six to ten times. Only 1.92% respondents had shared the original content, curated content and re-purposed content more than 50 times.

► Issues and Barriers

1. The analysis of the data revealed that 'lack of understanding of intellectual property licenses, copyrights and Creative Commons licenses' stood at Rank 1 with weighted score of 180 points. Other issues ranked by the respondents from 2 to 5 were: lack of ICT skills required to create OER (Rank 2), lack of knowledge for using OER in teaching and learning process (Rank 3), lack of recognition and rewards system for developing OER (Rank 4), and lack of financial resources with the institution to invest in OER (Rank 5).
2. In addition to the above, other issues identified by the respondents from Rank 6 to Rank 10 were: lack of technological support to resolve day-to-day issues (Rank 6), poor technical infrastructure (Rank 7), lack of training and capacity building opportunities in OER (Rank 8), sharing of expertise for the re-learning of OER Practices with other faculty members (Rank 9), and inability to find existing OER on topics of interest (Rank 10).

► Suggestions

- The highest number of respondents (82.69%) suggested that effective technical support should be provided to the faculty working for the OER that was followed by: more training and staff development opportunities to be provided (75%), OER policy should adopt more flexible approach (71.15%), incentive should be given to the faculty involved in OER activities (67.31%), infrastructure should be upgraded to suit the changing requirements for OER practices (65.38%), OER should be integrated in the educational programmes through instruction



design (65.38%), and OER culture should be developed and encouraged in the University (65.38%).

- As many as 63.46% respondents emphasised that the quality assurance mechanism should be strengthened and in-house facilities for OER development should be enhanced (61.54%). Other suggestions offered by the respondents were: due weightage/credit to be given to the faculty for use/development and sharing the OER (59.62%), OER communities should be developed in the University (55.77%), more funds should be allocated for development of OER (55.77%), monitoring mechanism for OER activities should be developed (51.92%), and collaborative approach to development and use of OER should be developed (48.08%).

► Recommendations

- Educational institutions need to ensure that the resources created by them are easily accessible through smart devices as well. The content creators need to ensure that the content developed is compatible to use in different devices such as smart phone, i-pad, desktop, laptops, etc., at the same time.
- Efforts should be made to develop OER in popular formats such as RTF, JPG, MP3, MP4, MPEG4, HTML, etc., that do not require proprietary applications to use them. Adoption of open source software for development of eContent could be a viable possibility other than the use of proprietary software for creation of such content.
- Availability of an enabling OER policy in an institution has long-term bearing on the working of teachers and students. It would not only create a positive ambience supported by the management of the institution, but also help in developing an OER friendly culture in the institution that would further result in emergence of communities of OER users. Such a policy can be adopted at the national level to be followed by educational institutions across the board.
- Periodical conduct of awareness and faculty development programmes in OER go a long way in enrooting this ethos in teaching and learning processes practiced by teachers as well as students. The current study focused on the need of a reward and recognition mechanism in the educational institutions that would transform the activity of use and creation of OER into academic duty of the teachers as part of their institutional life.
- It was observed that the institutions under the study have created their own institutional repositories that cater to the content requirement of the users in local languages. The eContent generation and its uploading on such repositories should be made a regular feature so as to enrich the knowledge domain in vernacular languages.

- The instructional methodologies for different programmes could be designed in a way so that use and application of resources available on the web becomes an integral part of the pedagogical process. Such a state would lessen the burden of creation of additional content as part of OER upon teachers; rather the available resources could be used by the teachers for their teaching and learning processes in addition to extending the benefit of availability of such content to the general users other than the students.
- In order to make optimal use of available quality educational resources, it is essential for the teachers to contextualise them for alignment with the courses and syllabi, instructional methodology and language, and integrate them in the pedagogical system. If more resources are created and shared as OER in regional languages, the availability of content will benefit the local users; therefore, more efforts need to be directed towards creating the content with local context dominance.
- The current study has indicated the lack of infrastructure in many cases as a major challenge. In order to harness the potential of the OER, the institutions need to make reasonable investments in appropriate technologies for OER directed teaching and learning processes.
- While the educational institutions have limited scope of efforts due to various constraints, the efforts of the governments to promote OER should focus on aggregation, adaptation and translation of the educational resources available elsewhere so as to fit them in different local contexts in line with the curriculum in vogue at different levels.
- Standardisation of the curriculum and syllabi at different educational levels would go a long way in fully utilising the capacity of OER.

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The advancements in ICT have exerted unprecedented influence on all walks of human life. Much of the influence is visible on the methodologies, approaches and strategies to impart education as well. The Education system has witnessed a technological disruption with the extensive use of ICT more so the web, Internet and now the open access content and other free educational resources. The Open Educational Resources (OER) is an innovation of modern times that has expanded access to educational resources and boosted the open movement globally (Chae & Jenkins, 2015). OER has gained lot of importance and attention of the governments and institutions during the past few years (Johnson, Becker, Estrada, & Freeman, 2015). The OER has emerged as the enabling tools for the education system more so the open and distance learning, to expand the horizon of access to quality education for all the aspirants.

The OER movement has boosted the OER initiatives across the globe and these initiatives have taken place to integrate the resources with teaching and learning practices (Weller, Arcos, Farrow, Pitt & McAndrew, 2015). However, adoption of an effective OER policy by the institutions is crucial in order to boost the proliferation of OER in the higher education sector. The governments of welfare states have moved much ahead in pursuit of providing quality higher education to their citizens at affordable cost on anytime and anywhere basis. The OER initiatives are one such effort in this direction. Weller, Arcos, Farrow, Pitt and McAndrew, (2015) emphasised that the open licenses attached to the content allow experimentation and innovation that is one of the important features of OER.

The Open Educational Resources give the creator an opportunity to share his/her knowledge with the rest of the world by keeping it in the public domain imposing minimum or no restrictions on its use, re-use, remixing etc. The motive behind the OER is to spread knowledge to all corners of the globe hitherto unreached, by enhancing its affordability, access, and quality. The student community at large as one of the biggest beneficiaries gets an opportunity to enhance educational avenues and seek information that was hitherto inaccessible owing to various reasons. This phenomenon has made OER very important for the education system across the international boundaries making it now difficult to enrich the pedagogical processes without use of OER.

The UNESCO 2002 forum on OER boosted the awareness, use and contribution of OER globally. Different academic communities – formal and informal, have contributed to the development of OER across the globe. The participation of institutions and governmental, and non-governmental organisations is increasing



exponentially day by day. The new practice that has emerged as part of the OER movement is that it follows a collaborative approach in addition to independent efforts by the educational institutions. The OCWC, Japan; CQOCW, China; and NPTEL, India among others are examples of collaborative initiatives in OER development (Chen & Panda, 2013).

The Open Educational Resources has been available for over one and a half decades now and is gradually marking its presence as well as establishing potential for globalisation of education. The OER movement started with the premises that knowledge should be freely accessible to all. Restrictions to valuable educational resources should be minimised to the extent possible and the needy should be able to access quality content without any discrimination. Financial position or resourcefulness of a user does not have any significance in the OER movement. The “*OER offer[s] opportunities for sustainable growth in improving the access and quality of education by enabling free use and re-purposing of high-caliber learning materials*” (CSF, 2013). The OER is able to meet the requirements for scaling of educational content and instructional material.

Visualising the importance of OER in the world where quality educational resources have not been openly available for free use, UNESCO (2012), through its Paris OER Declaration 2012, requested the governments all over the world to adopt an enabling OER policy at the national level and release the content developed by publically funded educational institutions under open license.

Way back, half a decade ago, a study conducted by William and Flora Hewlett Foundation (2013) reported that “*policy makers, administrators, and educators have yet to be fully convinced that OER are [is] worth integrating into everyday use*”. However, the review of the related literature for the current study shows that the scenario has substantially changed during the last few years and OER is being considered as potential tools in the hands of the users to democratise quality educational resources.

► 1.1 Defining OER

The definitions of OER provided by different scholars lay emphasis on different components of educational resources. Invariably, these definitions focus on the freedom to usability of these educational resources. Don Olcott Jr. (2012) felt that the OERs have emerged as a catalyst for making an indelible change in the life of the masses by bridging the digital gap, with education sector being its biggest beneficiary. Though, “*the potential transformational capacity of OER is growing and yet many challenges remain*” (Kanwar, Kodhandaraman, & Umar, 2010). Quoted below are some of the definitions of OER widely used and popularly known in the OER world:

As defined by UNESCO,¹ “*Open Educational Resources (OERs) are any type of*

¹ <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers/>

educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation.”

As per the definition of OER provided by William and Flora Hewlett Foundation,² “OER are the teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.”

On the other hand, Hoosen, Moore, and Butcher (2016) explained that the OER “are educational materials and resources that are offered freely, are openly available to anyone and, under some licenses, allow others to reuse, adapt and redistribute them with few or no restrictions. OER can include lecture notes and slides, lesson plans, textbooks, handouts given to students, videos, online tutorials, podcasts, diagrams, entire courses, and any other material designed to be used in teaching and learning. Thus, the scale of OER can vary significantly. They can be as large as a textbook or as small as a single photograph. They can make up an entire course or curriculum or can be used to enhance existing textbooks.”

CSF (2013) remarked that the OER are aimed at encouraging “teachers and other content creators, to share their content, engage in peer review, and adapt as well as adopt resources to enrich their professional practice.” Downes (2011) defines OER as “material used to support education that may be freely accessed, reused, modified and shared by anyone.” Pulist (2016) considers the Open Educational Resources (OER) as “instructional or informational resources in the digital format with an educational value” among others.

► 1.2 Use and sharing of OER

Hilton and Wiley (2010) were of the opinion that the teachers have a moral responsibility to share their knowledge openly and freely. However, Rolfe (2012) found that the teachers who were older in age had a resistance in sharing their content for free use even though the younger ones had a positive attitude towards such sharing. Rolfe (2012) also found that the female teachers were far ahead than their male counterparts in sharing their content. Hart, Chetty, and Archer, (2015) similarly, pointed out that the use of OER by teachers outweighed the sharing of educational resources created by them. On the contrary, Mishra (2017) found the teachers were inclined more towards sharing OER than using the same. A close look at the studies shows that the researchers have different findings when it comes to use and sharing of the OER. Chen and Panda (2013) reported that while more than half of the teachers

² <https://www.hewlett.org/strategy/open-educational-resources/>



frequently contributed to OER, only one-third of the respondents used the OER often. Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) observed that higher use of OER by teachers puts pressure on them to contribute more that could further boost the promotion of OER.

Phalachandra and Abeywardena (2016) reported that 72% of the respondents had not shared their teaching content openly as OER. The teachers have been found to be reluctant to share their content due to various reasons. As reported by Brent, Gibbs and Gruszczynska (2012), many teachers felt their own work is not of high quality therefore, feel uncomfortable in sharing their work as OER. The OER meet different needs of the users including the teachers and students. While it comes to use of OER for a purpose, Perryman and Seal (2016) reported that 78% of the educators were using OER for comparing their own work with the one available on the Internet in order to assess the quality. On similar lines, Perryman and Seal (2016) further reported that majority of Indian teachers used OER to compare the quality of their own work. This is an important finding that the use of OER made them quality conscious about their own content.

Perryman and Seal (2016) reported that teachers were found to be using wide range of teaching and learning methods with the help of OER. They further revealed that in the Indian context, educators appeared to be making use of the OER more than the formal learners. This could be a routine in preparation for the teaching and presentation lessons.

► 1.3 Suitability of OER in Local Context

In order to make use of the OER, it is necessary to find the appropriate resources that could meet the requirements of teachers and students. The teachers and students adopt their own mechanism to find suitable OER based on certain criteria. The researches have revealed that finding a suitable OER in the local context has since been a constraint in optimal use of the OER. The CEMCA has already developed TIPS Framework³ to help the users to evaluate the OER on different criteria. In another attempt, Pulist, (2016) has suggested the evaluation criteria for the students to find out quality OER for their use. However, Masterman, Wild, White, and Manton (2011) reported that in spite of obvious benefits of use of OER, majority of teachers created their own material for teaching purposes. They considered that finding appropriate content on the Internet is a time consuming activity.

Hatakka, Avdic, and Gronlund (2009) observed that the OER are not being used to their full potential in developing countries since most of the content has been generated in the developed countries with western perspective and cultural settings. Its localisation and customisation is a must to make it suitable for the students in the

³ https://www.google.co.in/url?sa=t&trct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwj8guud_-YAhVFso8KHdqCAsUQFggxMAE&url=http%3A%2F%2Fcemca.org.in%2Fckfinder%2Fuserfiles%2Ffiles%2FTIPS%2520Framework_Version%25202_0_Low.pdf&usq=AOvVaw32fy7qouGnHzk_ONI_umye

developing countries. Therefore, the content and the context of the OER need to be flexible and adaptable. It needs to be aligned to the perspective of the developer and the target students and also the institution and the technologies to be utilised to make use of this content (Hatakka, Avdic & Gronlund, 2009). The content is bound to reflect the developer's own culture with a specific context. As suggested by Albright (2005), such content may lead to reduction in its potential if used as it is in different contexts.

Keeping in view the westernisation of the OERs, teachers in the developing countries are reluctant to use these resources for teaching and learning (Hatakka, 2009) and therefore, would like to create the OER with their own perspective and ideas with suitable contextualisation. For this purpose, the teachers would make use of these available resources as part of replacement of the content (Albright, 2005). Selinger (2004) also held that the available content needed to be contextualised and made culturally relevant for teaching in the local context. Making similar observations, Hatakka (2008) reported that the content available on the internet in its original form does not fit into the context of Bangladesh, and its contextualisation and adaptation is essential. However, the situation of creating own content may come to the advantage of the developing countries with local content being available in abundance. Self-creation of the content will help the teachers in their professional development even though it is very time consuming.

In a separate study, Venkaiah (2008) reported that OER coverage in different disciplines was not sufficient to almost half of the participants. At the same time, majority of teachers felt that the content available in the form of OER needed localisation. The studies have shown that the process of contextualisation and localisation has already begun in developing countries. As pointed out by Hatakka, Avdic and Gronlund (2009), teachers in Bangladesh educational institutions use the educational resources available on the Internet to modify them to fit into context as per the medium of instruction available locally. Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) also have reported almost similar findings suggesting that majority of users could not use the OER in their original form. However, they have been able to fit the OER in their learning by adaptation.

► 1.4 Institutional Policy on OER

The growing capabilities of OER provide us unparalleled options for expansion of quality educational resources and make their use in different sectors (Kumar, 2009). The OER now is capable of providing interactive content for augmenting the educational experiences. The educational institutions need to adopt enabling OER policies so that the faculty and students are able to make use of rich educational resources already available, and contribute substantially to the OER movement.

The ODL institutions are now re-considering their viewpoint to make their educational resources available in the public domain and are adopting OER policies



with provisions that impart them to promote use and sharing of the educational resources created by the faculty and staff. Don Olcott Jr. (2012) has the similar claim when he expresses that *“many high-quality, dedicated OER organisations in concert with many governments, universities, and scientific and cultural organisations are engaged in the advocacy, policy making, and funding, as well as use and expansion of OER”*. There is a need to adopt an OER policy at the national level so that the educational institutions are motivated to make way for promotion and use of the OER at the institutional level.

The institutional policy containing provisions on different aspects guides the faculty and staff to undertake a particular OER activity in a particular way. Similarly, the OER policy adopted by the institution will guide the staff and faculty as to how the OER use and sharing should be taken up by them. These policies put forth the overall goal and motive of the institutional existence and provide a direction to the efforts in consonance with the mission of the institution.

► 1.5 Open Licensing Policy

As pointed out by Clements and Pawlowski (2012), making teachers aware of the copyright and licensing policy is essential in order to enable them to use the educational resources with suitable attribution to the original creator. The awareness about OER and open licensing policy has led to enhanced use and contribution to OER by teachers. Bissell (2009) affirmed that since Internet provides ample opportunities to use and share the academic resources, keeping all the intellectual property rights reserved is not desirable and ideal in the educational context. Weller, Arcos, Farrow, Pitt and McAndrew (2015) reported that open licensing scheme influences the users to make use of OER either by adaptation or repurposing. The popularly known licensing policy in the context of OER is the Creative Commons Licensing policy. The open licensing schema offered by the Creative Commons provides criteria on the basis of which content can be released under six different copyright licenses. The permission to re-use, revise, remix and redistribute the content sets the scale of openness of the content.

The studies have shown that there are different levels of understanding of OER licensing policy among the teachers. Mishra and Singh (2017) reported that the teachers used OER in delivering their courses to the students. However, they were not sure about their knowledge of open licensing scheme. And perhaps that was the reason the teachers preferred to share their own creations instead of using material created by others. Contrary to this, Hart, Chetty, and Archer (2015) reported that majority of teachers were not willing to share their material unless written permission was sought from them. Phalachandra and Abeywardena (2016) also reported the general understanding of the open licensing mechanism as low among the respondents. This in turn discouraged them from sharing their content freely. In another study by Weller, Arcos, Farrow, Pitt, and McAndrew (2015) it was found that though majority of the teachers were conversant with the open

licensing policy only a few shared the content created by them. Similarly, Panda and Santosh (2017) revealed that a huge majority of teachers was concerned about the permission to re-use the OER.

The study by Hussain, Chandio, Sindher, and Hussain (2013) found that majority of teachers believed that the OER were free and could be used with due accreditation. However, Mtebe and Raisamo (2014a), and Harishankar (2013) pointed out that the teachers were not comfortable with the understanding of the open licensing policy that restricted them from using the OER freely. Consequently, many teachers did not share their content as OER. However, they were not aware of the fact that by applying open license to their creation, the creators are granting advance permission to the users within the limits of the license attributed to it and thus, there is not any infringement into the ownership rights of the authors. Contrary to this, the study by Brent, Gibbs, and Gruszczynska (2012) revealed that majority of teachers were not bothered about the license attached to the OER they were using, since it was for educational purposes.

Panda and Santosh (2017) reported that only half of the teachers were well aware of the open licensing mechanism for open educational resources. They opined that issues pertaining to licensing attributes were complex in nature especially when the content needed re-missing and contextualisation. Dutta (2016) also revealed that the faculty is apprehensive of releasing their content in the open domain since they feared losing the ownership of the content. Kursun, Cagiltay, and Can (2014) reported that assuring the faculty that their work would not be modified and due credit would be given to them, motivated the teachers to share more of their work. However, these teachers did not want that their work be repurposed, re-tweaked or derivatives created out of their work.

► 1.6 Use of OER by Students

A review of the relevant studies has shown that the students have positive attitude towards OER and they have been using the same for different purposes. However, as reported by Regalado and Smale (2014), in order to enable the students to access OER, it is pre-requisite that they had the access to computer or other smart devices on and off the campus. Cooney (2016) reported that in majority of the cases, students attributed use of OER to cost effectiveness. Perryman and Seal (2016) found that formal students used OER for “*professional development, to improve study skills, for formal studies, study related to work or business and to find university level content*”, among others. Study by Venkaiah (2008) also revealed that majority of learners were using OER. The study by Phalachandra and Abeywardena (2016) had similar findings that OER were helping the students in cost saving.

The reason for extensive use of OER by students as propounded by Cooney (2017) is that it was easy for the students to find the desired material on the Internet with everything being available at one place. However, the researcher found that a majority of students did not know as to where to search for the desired content. Petrides,



Jimes, Middleton-Detzner, Walling, and Weiss (2011) also considered cost saving and easy access to the OER as the potential benefits to the students. Similar findings have been reported by Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) stating that the students saved money by using the OER.

The study by Chen and Panda (2013) lays emphasis on contextualisation and localisation of the OER content in order to meet the content demand of the local students and teaching community. Weller, Arcos, Farrow, Pitt, and McAndrew (2015) claimed that use of OER improved learner engagement in learning. It might not have led to performance improvement but helped in enhancing student satisfaction. They noticed that low cost and flexibility of OER usage attracted the users.

Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) reported that the use of OER impacted the learners in the form of increase in learner participation, learners' interest in subject, learner satisfaction, and engagement of learners in the content, among others. Weller, Arcos, Farrow, Pitt, and McAndrew (2015) also found that use of OER minimises the risk of withdrawal from studies by 'students at the margin', and therefore, promoted retention. They found that the *"OER has a positive impact on student's attitudes and perceptions of learning, even if comparative data of score improvement is difficult to obtain"*. It is helpful in enhancing *"enthusiasm, engagement and confidence"* of the students.

► 1.7 Perception of Teachers

The perception of users towards a certain technology plays a crucial role in promotion of that technology. In this case the teachers are among the prominent users of OER for pedagogical purposes in addition to the students who would directly benefit from the use of OER. The studies reviewed for this report have projected a varied viewpoint of teachers towards use of OER and sharing their work in the same manner. McKerlich, Ives, and McGreal (2013) emphasised that *"using OER is an indicator of adoption, but creating OER and adding back to the community are key to broader adoption and sustainability"*. Butcher (2011) propagated that *"from a practical-applied perspective"*, OER are able to help the teachers and students alike by providing: *"access to global content that can be adapted and localised"*; *"more resources and choices"*; and *"opportunities to create diverse student and faculty learning communities"*. Mishra and Singh (2017) revealed that the teachers were highly positive about creating and sharing OER, while being slightly less enthusiastic about using externally sourced material. This was probably due to the fact that they got more satisfaction in doing so considering it a benevolent activity. However, Chen and Panda (2013) found that though generally the teachers were aware of the concept of OER, they were not able to distinguish OER and felt that all the web resources were OER.

Mtebe and Raisamo (2014b) claimed that majority of the teachers were willing to contribute to the OER repository freely. Contrary to this, Panda and Santosh (2017) reported that majority of the teachers were *"not in favour of making the academic programs and courses available free of cost"* due to personal reasons; however, they agreed

for sharing of the resources with their colleagues. In another study, Karunanayaka (2012) found that the teachers perceived the sharing habit with positive values. Studies by de Hart, Chetty, and Archer (2015) and Rolfe (2012) also reported the reluctance of faculty to share as OER the resources created by them for free. Perryman and Seal (2016) emphasised that use of OER has helped the Indian educators in changing their attitude towards “*openness and resource sharing*”. Mishra (2017) also found that the attitude of the teachers towards OER implementation to be very positive. The teachers believed that it was their duty to share the content developed by them for free.

Allen and Seaman (2014) have reported faculty perception about the OER; time needed to find an appropriate OER; difficulty in finding them and putting them to an evaluation process as restricting them from adopting OER. The authors claim that the faculty has an important role to play in deciding the failure and success of an OER initiative. In a study by Venkaiah (2008), the teachers believed that the OER fetched them wider recognition. They would be able to access quality content and save their precious time; therefore, they used “*OER in their teaching and learning process*”. The teachers who shared their content as OER achieved a great sense of accomplishment as reported by Mishra and Singh (2017).

► 1.8 Use of OER in Teaching and Learning

The studies have shown that use of OER is increasing and there is a growing interest of the institutions and faculty to adopt, adapt and repurpose the existing OER for augmenting the educational experiences of the learners. The implementation and use of OER makes an impact when it is judiciously integrated in teaching and learning practices. This integration may require the institutions and the teachers to adopt alternative methodologies to teaching and follow certain policies ubiquitous to the world of OER.

OER present wide range of possibilities for the teachers and learners of the higher education system (Dutta, 2016). Petrides, Jimes, Middleton-Detzner, and Howell (2010) reported that the teachers had used OER in several ways for teaching and learning, devising their own innovative methods; for example, they mixed the OER content with their own content for educational purposes, and used OER for preparing lessons and sharing the content with their colleagues. Phalachandra and Abeywardena (2016), while reporting the use of OER by teachers, also revealed that majority of respondents used OER for teaching purposes and also for supplementing their lessons. McGreal (2012) considers granularity of content as an important aspect of OER since it should be able to fulfill a particular pedagogical purpose. Chen and Panda (2013) revealed that the teachers used OER to teach key points, elaborate difficult points, cite an example, and provide ‘*task-driven*’ assignments to the students. They also wanted to use the OER containing eBooks, open courses, photos, pictures and videos as the preferred choice. However, Phalachandra and Abeywardena (2016) found that the respondents felt constrained in ensuring quality of the OER. They found that the teachers had great difficulty in finding open textbooks, course modules, audios and videos.



Phalachandra and Abeywardena (2016) reported that majority of the teachers felt that text material such as word and HTML files, were easy to adopt and re-use; other teachers felt that it was lecture notes and presentation slides that were easy to use. The teachers felt that ease of download was the most important factor to boost the adoption of OER by teachers. On similar lines, Chen and Panda (2013) found that the teachers were using the OER for pedagogical purposes in a big way. They were using OER for teaching after adapting them. The other majority used the OER for planning their courses. A good number of teachers were using these resources for self-professional development also.

► 1.9 Advantages of OER Usage

The use of OER derives different opportunities and advantages to institutions, teachers and learners at large in addition to common users other than the registered learners. OER provide new ways of tackling challenges in the higher education system enabling the aspirants to achieve their educational goals subsequent to entering into higher education (Pitt, Ebrahimi, McAndrew & Coughlan, 2013). The Hewlett Foundation (2013) found reduction in costs; enhanced learning efficiency; personalised learning and improvement of instruction; facilitation of localisation and customisation of content; and enhanced opportunities of access to knowledge for all as the substantial factors encouraging funding of the OER initiatives.

OER provide seamless access to quality educational resources at the global level adaptable to local conditions offering a great opportunity to choose from (Butcher, 2011). Pegler (2012) considers the positive institutional environment and attitude of the management as encouraging factors for OER promotion. Use of OER has promoted new innovative pedagogical practices leading to cost-effectiveness in providing quality educational resources to the students and teachers (Daniel, Kanwar & Uvalic-Trumbic, 2009). Petrides, Jimes, Middleton-Detzner, and Howell (2010) revealed that participants' *"engagement with OER not only reduced teachers isolation but also helped expending their roles"*.

OER are the instrument to provide affordable educational resources to all without any discrimination (Ngimwa & Wilson, 2012). Mishra (2017) claims that OER can be utilised to save on time in developing educational resources. The study by Chae and Jenkins (2015) emphasised the advantages of OER use as: saving on cost for students; easily customisable with a given pedagogical situation; and promotion of collaboration. Weller, Arcos, Farrow, Pitt and McAndrew (2015) claimed that use of OER has positive influence on the practice of reflection of teachers. However, majority of teachers were not sure whether use of OER fetched them cost benefits, though small percentage of them accepted having benefited on account of use of OER in their teaching process. However, CSF (2013) propagated that *"OER are available for free-of-cost, thus leading to reduction in the initial and overall cost of producing teaching and learning material"*.

Study by Weller, Arcos, Farrow, Pitt and McAndrew (2015) found that use of OER made teachers apply wide range of innovative pedagogical methods, and, thus broadened the horizon of the curriculum. As observed by Dutta (2016), “*OER initiatives might serve higher educational institutions as vehicles for outreach to non-traditional groups of students, widening participation in higher education and provide learning opportunities for those unable to use more traditional offerings or who are not parts of the traditional groups of higher education entrants*”. These types of initiatives taken on the part of the government as well as the educational institutions may go a long way in bridging the gap between the different forms of learning such as non-formal, informal and formal. However, Dutta (2016) considered it a challenge to make people aware about the availability of specific OER for use by them for free that can contribute to enhancement of learning opportunities.

► 1.10 Challenges and Barriers

The OER movement is over a decade old now. In spite of recent developments and initiatives furthering the promotion of OER, “*its use has not reached a critical threshold*” (OPAL, 2012). The challenges being faced by the users including the teachers and students are yet to be fully overcome, especially in developing countries. Nikoi and Armellini (2012) suggested that “*for OER to have an impact on higher education in terms of learner benefit and social inclusion, institutions need to address several key issues*”. Jahan, Arif-Uz-Zaman, Hossain, and Akhter (2018) reported that establishment of use of OER as per the expectations of the sub-urban and rural areas has been a great challenge in Bangladesh. The digital literacy in the country is also seen as another challenge in use of OER (Zambrano & Sewart, 2013). They felt that there was a dire need of making OER available in the country with optimal instructional and institutional support for learners and teachers at large. The other constraints highlighted by the authors were: inadequate IT infrastructure, lack of coordination among different divisions, limited scope of staff training, lack of awareness, and lack of acceptability.

Zambrano and Sewart (2013) emphasised that development of ICT skills in Bangladesh has been a challenge and realising the unprecedented benefits of ICT integration, the government has now initiated a programme for integration of ICT in education at different levels. At times the teachers have a sketchy idea of OER but lack thorough knowledge of application of OER and copyright issues connected with them. This becomes a receding factor in implementation of OER in the educational institutions. Hatakka, Avdic, and Gronlund (2009) pointed out that the IT infrastructure in Bangladesh is yet underdeveloped and spread of internet in the masses is minimal. Similarly, Hatakka (2008) reported that the accessibility and use of Internet in Bangladesh is very low and Bangladesh Open University is the only institution that delivers distance education programmes with the help of ICT. However, Bangladesh can seek advantage of using OER in order to save on cost and time in development of content for leveraging learning experience of the distance learners.



The major impediment affecting promotion of OER identified by Mishra and Singh (2017) were: lack of awareness of open licensing mechanism; current workload on teachers; lack of appreciation and recognition for promoting OER; lack of 24x7 technical support; lack of training and professional development in OER; financial constraints with the educational institutions to spend on OER. Dhanarajan and Porter (2013), and Mtebe and Raisamo (2014a) have pointed out similar constraints. In the Indian context, Perryman (2013) considered lack of ICT skills of the educators as a major constraint preventing them from making optimal use of the OER. Harishankar (2013) highlighted the extensive workload on teachers as one of the constraints.

Mishra and Singh (2017) reported that many teachers lacked the knowledge of using OER for pedagogical purposes, finding topics of interest on the internet and inability to remix the existing OER for specific target learners. In certain cases the content was not available in local languages. While studying the barriers in implementation of OER in Bangladesh, Hatakka (2009) found that the teachers had low technical skills and lack of knowledge about the open content; and therefore, were not able to use the internet for educational purposes optimally.

As reported by Hilton and Wiley (2009), the barriers in promotion of use and contribution of OER were: lack of time with teachers, conservative approach to sharing of resources, lack of appreciation mechanism for creation of OER and a concern that resources created by them may not be optimally used by others. In case of Hussain, Chandio, Sindher, and Hussain (2013), even lack of power supply was one of the critical impediments in promotion and use of OER. Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) reported that knowledge of specific OER repositories among the users was low, and therefore, finding them became a challenge for many users.

► 1.11 Objectives of the Study

The review of literature has shown that the educational institutions, teachers and students are at various levels of OER use and contribution. The current state of affairs can be attributed to lack of awareness about OER and their potential usage by the users; lack of training and development of OER functionaries; lack of ICT infrastructure; lack of policy framework with the educational institutions; and, lack of recognition and reward mechanism for the potential OER actors among others. In the recent past, the OER interventions of CEMCA have focused on capacity building of faculty and other functionaries in the three ODL institutions among others, i.e., Bangladesh Open University, Netaji Subhash Open University, and Odisha State Open University. The current study seeks to evaluate these initiatives for promotion of OER. Therefore, the following objectives have been specified for the study restricted to the above ODL institutions:

- a) Study OER policy adoption and implementation;
- b) Analyse the perception of faculty in use of OER and sharing of resources created by them;
- c) Explore the perception of faculty towards OER use by the students;
- d) Examine the awareness of faculty about licensing policy and sharing of resources created by them;
- e) Study the extent of use, re-use and re-purposing of OER for teaching and learning;
- f) Analyse the extent of use of OER in SLM development process subsequent to capacity building of faculty;
- g) Report the extent of sharing of resources created by the faculty;
- h) Examine the extent of use of OER in programmes already launched in above ODL institutions;
- i) Identify the issues and challenges in implementation of OER;
- j) Make recommendations to augment teaching and enrich learning experience with the help of OER.

The next chapter focuses on the methodology used for the current study.

The study is an attempt to evaluate the capacity building and OER promotion interventions initiated by CEMCA in collaboration with Bangladesh Open University, Netaji Subhash Open University, and Odisha State Open University. Therefore, a mixed method interpretative description approach has been used to carry out the study. As observed by Thorne, Reimer Kirkham, and O’Flynn-Magee (2004) *“the interpretive description provides grounding for the conceptual linkages that become apparent when one attempts to locate the particular within the general”*. It was considered appropriate to gather the data in quantitative and qualitative forms. The use of four different tools such as survey questionnaire, focus group discussion schedule, interview schedule and eContent repository datasheet have been made in the study. An analysis of the OER policy adopted by the institutions under study was also done to report the status. The questionnaire was designed for the faculty who participated in capacity building programmes in different areas of OER development, use and implementation. The multiple-choice, Likert scale and open-ended questions formed part of the questionnaire that was administered online. This chapter describes the methodology used for the study.

► 2.1 Research Questions

The current study is important in that it investigates the effectiveness of awareness and capacity building interventions undertaken by CEMCA for OER promotion. The study tries to provide answers to the following research questions:

1. What is the perception of teachers about OER use and sharing?
2. What is the knowledge level of faculty pertaining to the open licensing system?
3. What is the extent of use and sharing of OER by the teachers?
4. What are the issues and challenges in promotion of OER?
5. What is the overall effect of capacity building interventions initiated by CEMCA?

► 2.2 Research Tools

The development of the instruments for the study was guided by the relevant literature on OER development and use. Keeping in view the objectives and research questions

to be answered by this study; the following tools were developed and used to collect the qualitative and quantitative data:

- Questionnaire for the OER functionaries
- Focus Group Discussion Schedule
- Interview Schedule for the Heads of Institutions
- eContent Repository Data Sheet.

► 2.3 Validation of Instruments

A meeting of a group of 10 experts in OER and related areas drawn from higher education institutions in India was conducted in order to validate the format and content of the tools, and ensure internal consistency and clarity of the questions used in all the four tools. Each of the items of the instruments was discussed in detail to justify its inclusion in the concerned instrument in its current or modified form. Based on the suggestions and feedback received from the expert group, the modifications were carried out in the instruments before deploying them for data collection. The relevant parts of the survey questionnaire that sought to study the perception of the participants, were further analysed to seek a Cronbach Alpha score to establish internal consistency of the items.

2.3.1 Questionnaire

A number of previous studies that evaluated different activities related to OER or studied perception of the OER functionaries were consulted to decide about the tools to be used for the current study. Accordingly, the selected items were drawn from the questionnaire constructed and used by Mishra (2017), and appropriate modifications were made wherever necessary to study the perception of teachers about use and promotion of OER. Keeping in view the objectives and research questions of the current study, additional items were designed and incorporated in the questionnaire. The questionnaire is placed as Appendix-A. As suggested by the expert group, 20% of the statements in the Likert Scale items were presented in negative form to break the monotony of the statements. However, for analysis purposes, they were converted to positive statements later on. In order to seek free and frank responses, the participants were informed that their participation in the survey was voluntary and they could quit any moment they wished or chose not to respond to a question. However, the objective of the questionnaire was to seek as much feedback from the participants as possible. The participants were assured of the confidentiality of their responses. The subset-wise distribution of items in the questionnaire is presented in Table-2.1.

**Table-2.1:** Distribution of items in the questionnaire

Sr. No.	Particulars	No. of Items
a)	Personal information	5
b)	OER Policy Adoption and Implementation	8
c)	Perception of faculty towards OER	12
d)	Perception of Teachers about learners using OER	19
e)	OER/Licensing Policy awareness of teachers	8
f)	Use of OER for teaching and learning	16
g)	Use of OER for SLM development	17
h)	Sharing of resources created by the faculty	17
i)	Issues and Challenges	18
j)	Suggestions	15
	Total	135

The Likert Scale was used to seek responses on items based on perception/opinion. In addition, open ended and multiple choice questions were also incorporated in the questionnaire to seek feedback on different aspects of use and sharing of OER. The online questionnaire was created on 'Google Forms' and administered to the participants through email. The participants were requested to fill the responses online.

The responses to questions regarding the perception on a 5-point Likert scale measured as: Strongly Disagreed (1), Disagreed (2), Undecided (3), Agreed (4), and Strongly Agreed (5). In case of items showing awareness and use of OER for different purposes, the measurement on a 5-point Likert Scale was: Not At All (1), Only a Little Extent (2), To Some Extent (3), To a Great Extent (4), and To a Very Great Extent (5). The Cronbach Alpha Scores calculated to ensure the internal consistency of the items in case of the perception/opinion sub-scales used in the questionnaire are presented in Table-2.2.

Table-2.2: Cronbach Alpha Scores for different sub-scales

Sub-Scale	Alpha Score
OER Policy Adoption and Implementation	.702
Perception of faculty towards OER	.786
Perception of Teachers about learners using OER	.784
OER/Licensing Policy awareness of teachers	.773
Use of OER for teaching and learning	.938
Use of OER for SLM development	.938
Sharing of resources created by the faculty	.903

2.3.2 Focus Group Discussion

The focus group discussions (FGD) were organised in all the three participating open universities to learn about the perceptions of the participants and qualitatively

substantiate the data gathered through the survey questionnaire. The focus groups were restricted to 9–12 participants in order to keep the group manageable and make the interaction meaningful. The schedule for the focus groups contained open ended ‘*What? Why? How? and Who?*’ questions to enable in-depth and threadbare discussion with the participants. Totally, 14 main items were included in the FGD Schedule in addition to two sub-items under each of the main items (Appendix-B). The participants were assured of the confidentiality of their responses. The participants were asked to go through the Consent Form (Appendix-E) carefully and sign it. The focus group questions were pilot tested before conducting final discussions for qualitative data collection. One of the faculty members at each of the institutions was requested to help the interviewer in conducting the FGD activities.

The teachers who had attended faculty development and capacity enhancement programmes conducted by CEMCA were invited to the FDG. However, the teachers available on the day of the FGD only could participate. The distribution of participants in the FGD from the three Universities is presented in Table-2.3.

Table-2.3: Institution-wise distribution of FGD participants

Name of University	No of Participants
BOU	11
NSOU	12
OSOU	9

The participants were informed that their participation in the discussion was voluntary. The written consent (Appendix-E) was also sought from them for their voluntary participation in the discussion. The participants were assured of the confidentiality of the data gathered through the discussion. The discussions were audio recorded and transcribed later. Concepts were derived from the transcriptions and codified. They were used later to substantiate the findings drawn from the analysis of the data collected through the questionnaire. The copy of the FGD Schedule is presented as Appendix-B.

2.3.3 Interview Schedule

The perception and opinion of the head of an educational institution play a crucial role in ensuring proper implementation of OER initiatives in that institution. Keeping this premise in view, an interview schedule containing five items was prepared for the Vice-Chancellors of the Open Universities. They were requested to share their views through the structured interview. The copy of the interview schedule was provided to them beforehand to enable them to prepare the answers. Hill, Thompson, and Williams (1997) emphasised the need to provide interviewees with the set of questions before interviewing them in order to make the interview more effective. The interviews of the Vice-Chancellors were audio recorded and transcribed later for use in the study. The copy of the interview schedule is presented as Appendix-C .



2.3.4 eContent Repository Data Sheet

The Universities have launched their own OER repository portals in order to accommodate the eContent produced by their faculty and share the same as OER. A datasheet was prepared to receive the data related to the OER repository such as the number of courses for which eContent has been developed and uploaded on the portal, format of the eContent, discipline areas, number of audio and video programmes uploaded, number of hits received by the portal, content search mechanism, feedback mechanism, etc. provided on the portal. The copy of the eContent Repository Datasheet is presented as Appendix-D.

► 2.4 Operational Definitions

The participants had attended the capacity building workshops organised by CEMCA in collaboration with the Open Universities under study and they were well conversant with the technical terms and jargons used in the area of OER. Therefore, popular terms that the participants already knew were used in the tools used for the study.

► 2.5 Participants

The OER interventions of CEMCA have focused on the three ODL institutions among others. Therefore, the scope of the study was restricted to these three institutions – one from Bangladesh and two from India – i.e., Bangladesh Open University (BOU), Gazipur, Bangladesh; Netaji Subhash Open University (NSOU), Kolkata, India and Odisha State Open University, Sambalpur, India. The survey questionnaires were administered to 118 participants from the three universities. The details are presented in Table-2.4.

Table-2.4: The University-wise distribution of participants

Name of Institution	No. of Faculty to whom questionnaire was sent
BOU	36
NSOU	51
OSOU	31
Total	118

► 2.6 Data Collection

The three ODL institutions such as Bangladesh Open University, Bangladesh; Netaji Subhash Open University, India; and Odisha State Open University, India where CEMCA had extensively initiated its OER interventions were chosen for the current study. The data was collected with the help of the following four tools designed specifically for the study:

- a) Questionnaire for the OER functionaries (Appendix-A)
- b) Focus Group Discuss Schedule (Appendix-B)
- c) Interview Schedule for the Heads of Institutions (Appendix-C)
- d) eContent Repository Data Sheet (Appendix-D)

As mentioned *ibid.*, the survey questionnaire was administered to 118 participants in the capacity building workshops. In all, 52 responses were received. The details of the responses received against the questionnaire are presented in Table-2.5.

Table-2.5: University-wise distribution of responses

Name of Institution	No. of responses received
BOU	20
NSOU	21
OSOU	11
Total	52

The FGD was conducted in each of the open universities with audio recording for transcription purposes. The university-wise distribution of participants for FGD is presented in Table-2.6.

Table-2.6: University-wise distribution of Participants for FGD

Name of Institution	No. of Participants
BOU	11
NSOU	12
OSOU	9
Total	32

The personal interview of the head of institution in the three universities was conducted and audio recorded for transcription purpose. The transcriptions were used later to support the findings of the questionnaire data analysis.

► 2.7 Data Analysis and Interpretation

As against the administration of the survey questionnaire on 118 participants, the filled in responses were received from 52 participants. The data collected through the online survey questionnaire was coded and transferred to SPSS software package for undertaking further analysis. The MS-Excel was also used to tabulate the data and undertake simple statistical calculations. The objectives of the study led the analysis and interpretation of data. The responses received in the FGD and personal interview were also analysed in light of the objectives and sub-themes used in the study. The data received through the eContent Repository Data Sheet was analysed separately. In case of the Likert scale items included in the questionnaire, the overall mean score was taken to present the inclination of the participants towards one end of the



scale and the level of agreement/disagreement towards a particular statement. The frequency distribution and percentages were drawn wherever considered appropriate for presentation of data.

The findings have been presented in the forthcoming chapters along with the discussion followed by recommendations for further research.

► 3.1 Introduction

As reported by McAndrew and Cropper (2010), initial works related to OER have focused on how to produce OER and generate awareness about the availability of OER among the communities. The focus has now shifted to utilisation, policy perspective on OER and its impact on teaching and learning, and the way OER can support educational endeavours across the globe. CSF (2013) also holds that majority of the OER initiatives in the Indian context hinge around generating the educational content for higher education. It is important to contextualise and localise the content available in English in majority of the cases into vernacular languages. However, it can be observed that the educational institutions in India and Bangladesh are still in different phases of OER adoption, use and contribution, and are yet to become active participants of the OER knowledge domain.

In the Indian context, the Government adopted the OER movement in policy and practice. The birth of NPTEL – a joint initiative of IITs and IISc – in 2003 immediately after UNESCO had adopted a definition of OER, is testimony to the benevolent policy framework of the Government (Walsh, 2011). OER developed in the Indian context can be classified into audio-visual OER and textual OER, with most focusing on technical, vocational and higher education (Das, 2011). The launch of eGyankosh; IGNOU, Vidyanidhi; University of Mysore, Rai OpenCourseware; Rai Foundation, OSCAR; IIT Bombay., etc. are some of the notable Indian OER repositories in higher education. In all, India has registered 79 institutional repositories on OpenDOAR (2018). These institutional repositories are supported by different government funded and private institutions of higher education. These initiatives make a pool of educational resources to meet the knowledge requirement of Indian masses among others as a driver to equity, access, affordability and availability of quality education (Das, 2011). These educational resources cater to different strata of the Indian population and try to bridge the gap between the haves and have nots; and thus, essentially help the educational aspirants in equipping themselves with the set of skills and knowledge required for the knowledge society.

Bangladesh has 12 institutional repositories supported by different public and private educational institutions (OpenDOAR, 2018). Majority of the repositories provide open access to journal articles and unpublished theses. Very few of them provide open access content in the form of OER. There are two institutional repositories that provide eContent in the form of open educational resources: Dhaka University Institutional Repository, and Digital Repository of the International Center for



Diarrhoeal Disease Research (UNESCO, 2017). There are 76 open access journals available in Bangladesh as listed in the Directory of Open Access Journals. The Government of Bangladesh is taking steps for promotion of open access movement within its constraints of inadequate IT infrastructure. The Open Access Bangladesh is another initiative started in February 2017 to provide an online platform for open access, open data and open education in Bangladesh (Das, n.d.).

Concerted initiatives launched by CEMCA in collaboration with the open universities in India and Bangladesh are the need of the hour to support these universities so as to actively participate in the OER movement. Their involvement in this movement will not only help them in claiming advantages of the OER to enrich teaching and learning but also to contribute substantially to the OER repository by contextualising the existing content and sharing it along with new content created in the regional context with the rest of the world.

► 3.2 CEMCA Initiatives

The higher education institutions have started creating OER repositories for extending access to quality learning material to their enrolled students along with the public in general. These initiatives of creating OER repositories can be seen as governmental as well as institutional efforts. The Commonwealth Educational Media Centre for Asia (CEMCA) under the aegis of Commonwealth of Learning (COL) (an inter-governmental organisation) is one such organisation serving the cause of higher education especially the open and distance learning by designing interventions at different levels for promotion of OER use in teaching and learning in association with educational institutions, experts, faculty members and students at large. The CEMCA vouches for more and more institutions and organisations to implement and improve significantly the ODL system and practices, and enhance quality learning opportunities particularly for marginalised communities. The Strategic Plan for 2015–2021 (CEMCA, n.d.) released by CEMCA envisages the following targets/ interventions among others to accomplish the task:

- 15 higher education institutions in three countries adopt/develop OER/ODL policies and practice for improving instructional delivery and increase access to quality learning.
- 600 teachers and functionaries in four countries have capacity to develop and deliver quality teaching learning materials integrating educational media including existing OER.
- 30,000 learners from 3 countries use 30 innovative and need-based courses related to national needs (available as OER) or better competencies and learning opportunities.
- Out of 30,000 above learners, 10,000 girls and youth from marginalised communities enroll and complete the tertiary education through Community-based learning Support System and improve their employability and entrepreneurship.

In order to fulfill the objectives of promotion and use of OER in the Commonwealth Asian region among others, CEMCA has introduced interventions at different levels that can be categorised in the following manner:

1. Development of a standard OER Policy for adoption by the educational institutions;
2. Hand holding of the institutions to adopt a standard OER policy with customisation, if required;
3. Conduct of consultative meetings for promotion and implementation of OER;
4. Organisation of workshop for capacity building of different institutional functionaries including faculty and staff in:
 - licensing policy in OER
 - OER/eLearning material development
 - management of OER
 - teaching and learning with OER
 - use, re-use and re-purposing of OER
 - launch educational programmes based on OER
 - quality assurance in OER.

The scope of the current study is limited to the OER initiatives and projects carried out by CEMCA during 2015–2017 in collaboration with three open universities in the Indian Sub-Continent – Bangladesh Open University (BOU), Gazipur, Bangladesh; Netaji Subhash Open University (NSOU), Kolkata, India and Odisha State Open University, Sambalpur, India. The institution-wise details of OER initiatives and projects launched by CEMCA are presented in Table-3.1 and Table-3.2 respectively.

Table-3.1: Institution-wise details of OER initiatives undertaken by CEMCA

Sr. No.	Name of Institution	Activity	Duration	Target Group	No. of Participants
1.	Bangladesh Open University	Capacity building on development of eContent to deliver digitally	19–23 Jan. 2016	Academic and technical staff	31
2.	Bangladesh Open University	Capacity Enhancement Programme (CEP) on Open Education Resources OER	29 Aug. 2016	Policymakers	29
3.	Bangladesh Open University	Capacity Enhancement Programme (CEP) on Open Education Resources	30 Aug.–1 Sept. 2016	Non-academic staff	36

Contd.



Sr. No.	Name of Institution	Activity	Duration	Target Group	No. of Participants
4.	Bangladesh Open University	Capacity Enhancement Programme (CEP) on Open Education Resources	3–5 Sept. 2016	Academics for Master Trainers	36
5.	Bangladesh Open University	Capacity Enhancement Programme(CEP) for ODL teachers on OER	2–5 April, 2017	ODL Teachers	30
6.	Odisha State Open University	OER and Open and Distance Learning	11–13 Feb. 2016	Academics for Master Trainers	31
7.	Odisha State Open University	Create and Repurpose of OER for Learning	25– 27 Oct. 2016	Academic and non-academic staff	28
8.	Netaji Subhash Open University	Capacity Building Workshop on Institutional OER Policy	1–3 June 2016	10 open universities from India	28
9.	Netaji Subhash Open University	Curriculum and SLM development as OER for professional enhancement of Teacher Educators	17–19 Aug. 2016	Teacher Educators	19
10.	Netaji Subhash Open University	OER Capacity Building and Sensitisation Programme	26–28 Sept. 2016	ODL Professionals	32
11.	Netaji Subhash Open University	Staff Sensitisation Workshop on Institutional Open Education Resources (OER) Policy	5 Oct., 2016	ODL Professionals	12
12.	Netaji Subhash Open University	Finalisation of draft course materials as OER	13–14 Feb. 2017	Teacher Educators	14
13.	Netaji Subhash Open University	OER capacity building and sensitisation for ODL professionals	16 Feb., 2017	ODL professionals	7
14.	Netaji Subhash Open University	OER Repository and Innovative Course on Inclusive Education	12 May, 2017	ODL professionals	60
15.	Netaji Subhash Open University	Capacity Building Workshop on the Development of eContent	18–20 May, 2017	Academic staff	30
16.	Netaji Subhash Open University	Capacity Building Workshop of Teachers for online facilitation of Learners	21 and 27 June 2017	Academic staff	51

Table-3.2: Institution-wise details of OER Projects undertaken by CEMCA

Sr. No.	Name of Institution	Workshop title	Duration	Target Group	No. of Participants
1.	Bangladesh Open University	Project on OER Policy and Implementation of Blended approach through eLearning	July 2016 to June 2017	ODL functionaries	-
2.	Netaji Subhash Open University	Project on Development of MOOC/LMS platform for transforming professional development of teachers and teacher educators into an inclusive setting.	August 2016 to 20 June, 2017	In-service /Pre-service Teachers, Teacher Educators from both elementary and secondary schools across the country	-
3.	National Consultation	Creation and utilisation of OER	13–16 December, 2016	ODL functionaries	48
4.	National Consultation	Research on OER for development	20 December, 2016	ODL functionaries	40
5.	National Consultation	OER Policy for Higher Education in India	3 March, 2017	Vice-Chancellors and representatives of all State Open Universities	45
6.	National Consultation	Preparing draft OER policy for higher education	18 March, 2017	Vice-Chancellors and representatives of all State Open Universities	15

CEMCA organised a series of consultative meetings of the senior officers of the concerned open universities in order to help them in framing an OER policy for the institution in the light of its vision and mission. It could be easy to implement such a policy emphatically if the policy helped in promoting the OER while taking further the objectives of the institution at the same time. In the course of these consultative meetings, the concerned educational institutions, i.e., Bangladesh Open University, Netaji Subhash Open University, and Odisha State Open University were able to draft and adopt an OER Policy for implementation. The salient features of the OER policy adopted and implemented by each of the Open Universities are presented in the paragraphs that follow.

► 4.1 Bangladesh Open University

The BOU adopted the OER Policy in the year 2014. The policy provides necessary guidelines for applying copyright on the works created by the teachers and academics of the university, and use of the material created by others. Within the university, the copyright of the works created by the teachers and academics is attributed to its creator by default. The policy provides that the material created by the faculty within the university should be released under CC-BY and CC-BY-SA licenses. The latter category of license would mandate that any derivative created out of the material released by BOU should be shared/released using the same license under which the original source was released. However, preference will be given to CC-BY license. In cases where third party material has been used in creating the content, suitable license may be suggested by the creator to share the product as OER.

For the material produced by BOU, the recommended license is CC-BY-SA. In case of journals, the CC-BY license will be applicable while the copyright will lie with the author though their written consent will be obtained to release the same under the said license. The policy provides for implementation and regulation of the mechanism to produce, share and use OER in the University. It will be governed by a Copyright Policy Standing Committee. The committee has the mandate to review, revise and modify the policy as and when required. However, a wider discussion with the academic community would be required for making major revision and changes in the provisions of the policy.

► 4.2 Netaji Subhash Open University

The OER Policy⁴ adopted by NSOU provides for release of the course content of the School of Education, School of Professional Studies, and School of Vocational Studies in the first phase. In case of MOU with external agencies for development of material, the OER Policy of the university will be kept in view while deciding the copyright and license issues. As a general provision, all the educational material will be released by the university under CC-BY-NC-SA license. There is a provision of restricting the access to a certain specific material on case-to-case basis for which the concerned faculty would require to record the reasons for doing so. The university logo is not permitted to be used on the derivatives created out of the material produced by the university.

The material produced by the university and to be shared as OER will undergo a review process for quality assurance. The implementation of the OER Policy and quality assurance will be governed by the OER Board specially constituted by the university for this specific purpose. The Board will suggest for review of the OER policy and different processes connected with the OER production and sharing from time to time. The Policy provides for displaying a disclaimer on the OER Repository Portal *that “the material is for educational purposes only and the university absolves itself of any practical misuse of the OER materials or their content”*.

The Policy encourages the faculty of the university to “*search for appropriate OER to adopt/adapt in a course*” in order to improve student learning and reduce on cost and time for production of such a course. In case the material on a particular topic is not available as OER, the same may be developed in-house with the assistance of external experts and shared as OER after following the necessary review process for quality assurance. The Policy has a provision of extending capacity development opportunities to the faculty and staff associated with the development of the educational resources. As per the Policy, regular update on OER related issues including the copyright and licensing will be provided by the IT department for promotion of OER use and sharing among faculty in the university.

► 4.3 Odisha State Open University

The OER Policy⁵ adopted by OSOU is applicable to all the content developed by the University in-house or with the help of external experts. In case of development of the material in collaboration with other agencies, the provisions of the OER Policy may be considered while signing an MOU. The Policy provides for making an exception to specific learning resource for release as OER for which the faculty would be required to record the reasons for such restriction along with the duration of the restriction.

⁴ http://www.wbnsou.ac.in/about_us/20170325_OER_Policy_NSOU_2017.pdf

⁵ <http://www.osou.ac.in/docs/OER-Policy-of-Odisha-State-Open-University-Sambalpur.pdf>



The Policy will be regulated by OER Quality Review Board. Efforts will be made to release all the educational content under the CC-BY-SA license. The derivatives created out of the university material will not be allowed to use university log. The Policy provides for a comprehensive mechanism for quality assurance of the educational content to be released as OER on the Repository Portal of the university. As per the Policy, a disclaimer to the effect that *“the material is for educational purposes only and that the university absolves itself of any practical misuse of the OER materials or their content”* will be displayed on the OER Repository Portal.

The faculty is encouraged to search for the appropriate learning resources on the Web for adoption/adaption to improve student learning and save on time and cost of content production. The faculty and staff involved in OER activities shall be provided capacity enhancement opportunities by the university on a regular basis. At the same time regular updates related with OER processes, and copyright and licensing will be provided by the IT department. The Policy provides for a workflow mechanism in order to help the faculty in adoption of OER. The Policy encourages the staff and students at large to use, create and share the OER in order to enhance the quality of learner experience. The Policy brings home that the *“use, creation and publication of OERs are consistent with the university regulation, values and mission”*⁵. There is a provision for review of the OER Policy every year.

The development of the OER Policy by the three open universities under study is the outcome of the consultation provided by CEMCA through a series of consultative meetings. The analysis of the OER policies shows that these institutions have taken up the OER implementation in letter and spirit. The OER policy adopted by them is self-contained, self-sufficient, and self-sustained. The policy encourages the faculty to contribute substantially to the development of OER in addition to make optimal use of the available resources and provides a direction to use and sharing of the OER. The Policy has provision for sharing of the content even created with the help of external experts. These universities have launched their own institutional repositories on which the eContent developed by their faculty is uploaded. The content is available under the Creative Common Open Licenses. The Policy adopted by these institutions provides for restricting access to certain resources/content for which the faculty has to specify the reasons for such a restriction and also the time frame for which this restriction would be applicable. In cases where MOU is signed by these universities with external agencies, the provisions of the OER policy are kept in view so as to facilitate sharing of the content developed through such collaboration, as OER. The policy has an inbuilt mechanism for monitoring of its implementation as also periodic review so as to preserve its dynamic character in keeping with the faculty and institutional requirements from time to time. As per the policy a body will be constituted which will be responsible for implementation of the policy, and will also review it from time to time.

As part of the OER promotion and capacity building, initiatives of CEMCA institutions were suggested to create their institutional repositories so that the eContent generated by their institutions in different formats such as text, audio, video, etc., could be uploaded and managed in a systematic manner. It would be easy for the users as well to access all material produced in the institution at one place. Keeping in view the efforts made in creation of eContent, all the three open universities – Bangladesh Open University, Netaji Subhash Open University and Odisha State Open University have created their own institutional OER repositories. The content creation and upload on the university repository has become a regular feature in these universities now.

► 5.1 Bangladesh Open University

The Bangladesh Open University has developed the self learning eContent for over 350 courses pertaining to different programmes at the certificate, diploma, under-graduate, and post-graduate levels. The eContent for these courses has been uploaded on the University Repository. The University has covered Arts, Social Science, Agriculture and Science disciplines for development of eContent for University OER Repository. As many as 190 audio programmes and 181 video programmes have been developed by different disciplines and uploaded on the University Repository. The formats used for the self-learning eContent are PDF, Docx, XLSX, HTML, etc. Work is going on for development of SLM for 20 courses in addition to 10 audio and 36 video programmes. The website gets over 2000 hits for SLM, 1000 hits for audio programmes and 2500 hits for video programmes on a daily basis. The number of downloads by the users from the University Repository is also encouraging (SLM = 1500; Audio = 500; and Video =700). The repository has a provision of making searchers for the content based on name of programme, chapter and modules etc. The feedback is received from the users through written applications, emails, SMS and phone calls. The issues received by the university mostly relate to typographical errors in searching for the relevant content and these are resolved by the same channel through which the issues have been raised.

► 5.2 Netaji Subhash Open University

The Netaji Subhash Open University has developed eContent for over 28 different programmes at certificate, diploma, under-graduate, post-graduate and research degree



levels. The disciplines covered for development of eContent are: Commerce; Library & Information Science, Social Work, Education, BEd in Special Education, and Vocational Courses. The self-learning material for 15 programmes has been uploaded on the University OER Repository. The content is available in pdf format in majority of the cases in addition to audio and video formats. As many as 1033 audio and video programmes have been developed and uploaded on the Repository. The cross platform search mechanism has been provided on the portal that supports keyword, truncation, and probability search. The proximity and modified search facility with custom search engine has also been provided on the OER Repository Portal. The site has the usage analytics software to monitor the usage of different components online. The users can provide their feedback through the portal. The queries received from the users are resolved and their update is provided on the portal itself.

► 5.3 Odisha State Open University

The Odisha State Open University has developed eContent for over 25 programmes at certificate, diploma and PG diploma level. The eContent for all the programmes has been uploaded on the University OER Repository. The areas covered for development of eContent are: Management, Cyber security, Computer Application, Journalism and Mass Communication, Rural Development, Accounting, Disaster Management, Odiya, Hindi, Translation, Sustainable Development, Communication Skills, Soft skills and IT skills, Web Designing, and Geriatric Care. As many as 40 audio and 46 video programmes have been developed by the faculty and uploaded on the University OER repository. The content is available in .pdf and .html formats in addition to audio and video formats. As many as 6 audio and 7 video programmes are at the development stage. The website analytics has shown that as many as 1,23,321 hits for SLM, 83,367 for audio programmes and 98,854 hits for video programmes have been registered on the website. This could be due to the fact that majority of the content uploaded on the Repository is in Odiya language which is a rare availability. The material can be searched on the portal on the basis of customised query containing name of the programme and subject. The portal provides an email ID for receiving feedback from the users. The queries received from the users are responded through email.

The analysis of the data received from all the three open universities through eContent Repository Data Sheet revealed that these Universities are at the advance stages of development of content and uploading it on the Repository. The textual content, and audios and videos in substantial number pertaining to different courses at different levels have been uploaded on the Repository. The teachers, students and general users are making good use of the content. It shows that the faculty and other OER functionaries in these universities have greatly benefited from the capacity building workshops and lot of work in the area of OER development has been done already.

The data for the study was gathered with the help of the following: questionnaire, focus group discussion schedule, interview schedule and eContent repository data sheet. The questionnaire was administered online to 118 participants who attended the workshops and capacity building programmes in the areas of OER development, use, and promotion organised by CEMCA as part of OER capacity building/enhancement initiatives taken in collaboration with the open universities that participated in the survey: Bangladesh Open University, Gazipur, Bangladesh; Netaji Subhash Open University, Kolkata, India and Odisha State Open University, Sambalpur, India.

► 6.1 Profile of the Participants

As against a number of 118 participants to whom the questionnaire was sent, 52 responses in all were received from the participants that were subjected to analysis. It was noted that 32 (62%) respondents were Male and 20 participants (38%) were Female. The institution-wise distribution of the responses received from them is presented in Table-6.1. As can be seen from the data, 40.38% responses have been received from Netaji Subhash Open University followed by Bangladesh Open University (38.46) and Odisha State Open University (21.15%).

Table-6.1: University-wise distribution of participants

Sr No	Name of University	Freq.	%age
1	Bangladesh Open University	20	38.46
2	Netaji Subhash Open University	21	40.38
3	Odisha State Open University	11	21.15
		52	100.00

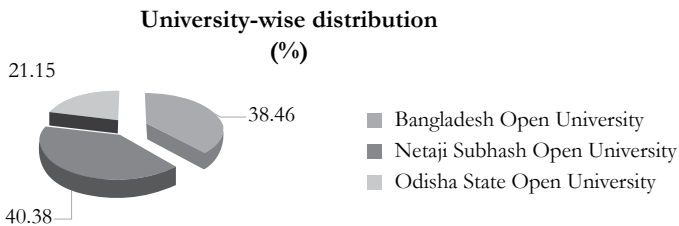


Figure-6.1: University-wise Distribution of Participants



The age group-wise analysis of the data revealed that highest number of respondents (35%) belonged to the '31–35 Years' age group followed by the '36–40 Years' (19%) and the 41–45 Years (12%). It was worth noting that 4% participants belonged to each of the '61–65 Years' and 'more than the 65 Years' age groups. It could be because OSOU is a new University and has currently employed academic consultants in the teaching positions. The age group-wise distribution of the participants is presented in Table-6.2.

Table-6.2: Age group-wise distribution of participants

Sr No	Age group	Freq.	%age
1	36–40 Years	10	19
2	41–45 Years	6	12
3	25–30 Years	3	6
4	31–35 Years	18	35
5	46–50 Years	5	10
6	51–55 Years	2	4
7	56–60 Years	4	8
8	61–65 Years	2	4
9	More than 65 Years	2	4
		52	100

Age-group-wise distribution (%)

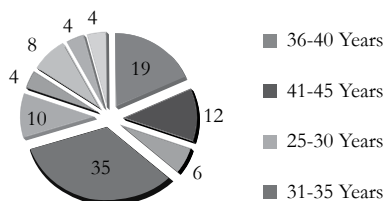


Figure-6.2: Age-group-wise distribution of participants

The faculty at different levels gets involved with OER activities. It is, therefore, immaterial to know about their designation. However, the participants were asked to mention their designations so that an idea of their profile could be taken. The respondents mentioned different designations including the temporary administrative positions they were holding at that time. The effort was made to put them at the relevant level of profession while keeping in view the academic activities handled by them. It has been revealed from the analysis of the responses that majority of the participants (54%) fell in the category of 'Assistant Professor' followed by 'Academic Consultant' (25%). As many as 13% respondents were associated with the participating universities as 'Associate Professors' followed by 'Professors' (6%).

As many as 2% participants were from ‘IT Officer’ category handling multimedia activities for development of open educational resources. The designation-wise distribution of participants is presented as Table-6.3.

Table-6.3: Designation-wise distribution of participants

Sr No	Designation	Freq.	%age
1	Academic Consultant	13	25
2	Assistant Professor	28	54
3	IT Officer	1	2
4	Associate Professor	7	13
5	Professor	3	6
		52	100

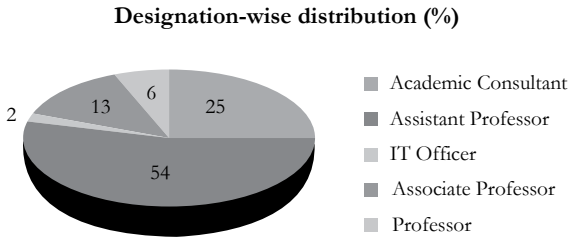


Figure-6.3: Designation-wise distribution of participants

The responses against the questionnaire were received from the faculty members from different disciplines and these have been analysed on the basis of their disciplines. It has been found that the highest number of respondents (23%) belonged to the Social Sciences discipline followed by Humanities and Arts (21%), Management and Commerce (21%) and Science (8%). As many as 2% respondents belonged to Multimedia discipline also. The Social Sciences discipline includes the discipline of Education and Law as well. The discipline-wise distribution of participants is presented as Table-6.4.

Table-6.4: Discipline-wise distribution of participants

Sr No	Discipline	Freq.	%age
1	Humanities and Arts	11	21
2	Management and Commerce	11	21
3	Medical and Health Sciences	2	4
4	Social Sciences (including Education and Law)	12	23
5	Multimedia	1	2
6	Vocational Education	3	6
7	Library Science	1	2

Contd.



Sr No	Discipline	Freq.	%age
8	Professional Studies	1	2
9	Special Education	2	4
10	Sciences	4	8
11	Engineering and Technology	3	6
12	Journalism and Mass Communication	1	2
		52	100

Discipline-wise distribution (%)

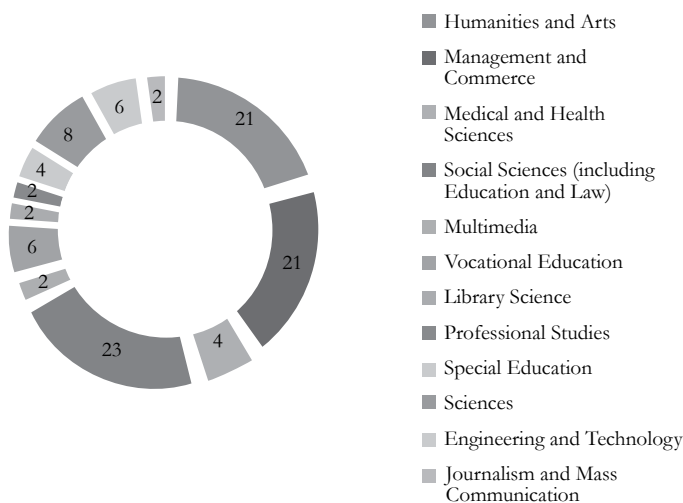


Figure-6.4: Discipline-wise distribution of participants

► 6.2 OER Policy Adoption and Implementation

The sub-scale on perception of participants about OER policy adoption and implementation contained 7 items. The Cronbach Alpha score depicting the internal consistency of the sub-scale was measured to be 0.702 and is taken as acceptable (Cronbach, 1951). The scale points ranged from 'Strongly Disagreed (1 point) to Strongly Agreed (5 points). The midpoint i.e. 'Undecided' was given 3 points. The mean score of the sub-scale ranged from 3.21 to 4.58. A value above 3 shows a positive inclination of the perception of the participants. The item pertaining to institution attaching great value to use of OER for teaching and learning indicated the highest score ($M=4.58$). It was also accepted by the participants that the OER Policy of their institution encouraged them to use OER wherever possible ($M=4.54$). The participants found the culture of their institution to be favourable for use and sharing of the OER ($M=4.44$). They found the overall impact of adoption of OER Policy in their institution to be positive ($M=4.38$). The statistics of the sub-scale are presented in Table-6.5.

Table-6.5: Perception of participants about OER policy adoption and implementation (N=52)

Sr No	Statement	Frequency/ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
a)	My institution attaches a great value to use of OER for teaching and learning	Freq.	0	0	1	20	31	2	4.58	0.54
		%age	0.00	0.00	1.92	38.46	59.62			
b)	The culture in my university is very favourable to use and share OER	Freq.	0	1	1	24	26	3	4.44	0.64
		%age	0.00	1.92	1.92	46.15	50.00			
c)	OER Policy of my University encourages me to use OER wherever possible	Freq.	0	0	1	22	29	2	4.54	0.54
		%age	0.00	0.00	1.92	42.31	55.77			
d)	OER Policy of my university mandates me to contribute to OER	Freq.	3	16	12	9	12	4	3.21	1.27
		%age	5.77	30.77	23.08	17.31	23.08			
e)	My university extends full infrastructural and technical support for use and contribution to OER	Freq.	6	8	5	18	15	4	3.54	1.36
		%age	11.54	15.38	9.62	34.62	28.85			
f)	OER policy for my university encourages collaborative efforts on the part of faculty for creation of OER	Freq.	2	11	7	18	14	4	3.6	1.21
		%age	3.85	21.15	13.46	34.62	26.92			
g)	Overall impact of adoption of OER Policy in my University is positive	Freq.	1	0	3	22	26	4	4.38	0.77
		%age	1.92	0.00	5.77	42.31	50.00			



► 6.3 Impact of Adoption of OER Policy

The analysis of the data received from the respondents regarding impact of adoption of OER policy revealed that huge majority of the participants (42.31% 'Agreed' and 50% 'Strongly Agreed') affirmed that the adoption of OER Policy in all the universities has a positive impact. In case of Bangladesh Open University, 55% of the respondents 'Agreed' along with other 30% respondents who 'Strongly Agreed' to this statement. Similarly, Majority of respondents (66.67%) from Netaji Subhash Open University 'Agreed' along with 28.57% respondents who 'Strongly Agreed' that adoption of OER policy had a positive impact in their University. In case of Odisha State Open University, all the participants (45.45% 'Agreed' and 54.55% 'Strongly Agreed') reported that the adoption of OER Policy had a positive impact in their University. The data pertaining institution-wise perception of the respondents is presented as Table-6.6.

Table-6.6: Perception of respondents towards impact of adoption of OER Policy

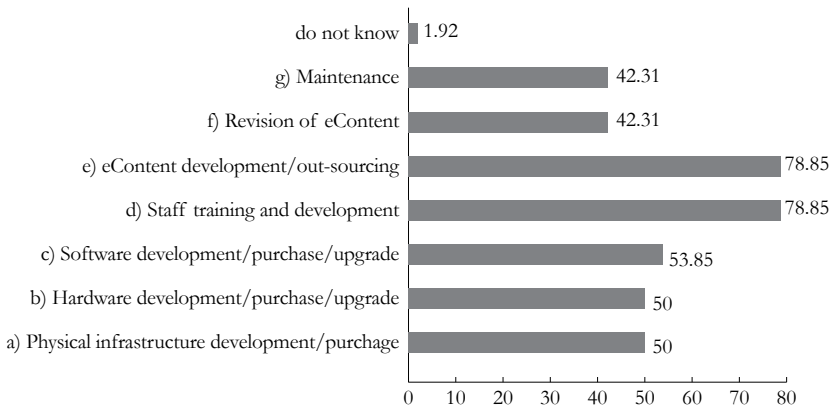
Sr No	Perception	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
		Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
a)	Strongly Disagreed	0	0.00	1	4.76	0	0.00	1	1.92
b)	Disagreed	0	0.00	0	0.00	0	0.00	0	0.00
c)	Undecided	3	15.00	0	0.00	0	0.00	3	5.77
d)	Agreed	11	55.00	6	28.57	5	45.45	22	42.31
e)	Strongly Agreed	6	30.00	14	66.67	6	54.55	26	50.00
	Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

► 6.4 OER Budget

The availability of funds is important for implementation of any initiative. The implementation, use and promotion of OER entail some financial incurring on the part of the institution so as to boost the movement. The participants were asked about expenditure and which of the components form part of the OER budget of their institution. The majority of the respondents (78.85%) reported that staff training and development, and eContent development and outsourcing are part of the OER budget in their institution. As many as 53.85% participants mentioned that software development, purchase and upgrade are parts of the OER budget followed by physical infrastructure development and purchase (50%), and hardware development, purchase and upgrade (50%). The OER budget component-wise distribution of the participants is presented in Table-6.7. The graphic presentation is given as Figure-1.

Table-6.7: OER Budget Component-wise distribution of participants (N=52)

Sr No	Component of OER Budget	Freq.	%age
1	a) Physical infrastructure development/purchase	26	50.00
2	b) Hardware development/purchase/upgrade	26	50.00
3	c) Software development/purchase/upgrade	28	53.85
4	d) Staff training and development	41	78.85
5	e) eContent development/out-sourcing	41	78.85
6	f) Revision of eContent	22	42.31
7	g) Maintenance	22	42.31
8	do not know	1	1.92

OER Budget Component-wise distribution of participants (%)**Figure-6.5:** OER Budget Component-wise distribution of participants

► 6.5 Perception of Faculty Towards OER

The sub-scale to measure the perception of faculty towards OER contained 12 items. The Cronbach's Alpha Score was calculated to be .786. The scale points ranged from 'Strongly Disagreed' (1 point) to 'Strongly Agreed' (5 points). The midpoint, i.e., 'Undecided' was given 3 points. The mean score of the sub-scale ranged from 3.69 to 4.54 that showed that the respondents had considered all the statements pertaining to the OER positively (3 being the neutral value). The participants firmly believed that sharing OER enhanced their personal and organisational reputation ($M=4.54$). They agreed that it gave them pleasure if somebody adopted/adapted their educational resources ($M=4.46$). The OER helped them to disseminate their ideas ($M=4.40$). They felt that institutions should share educational resources for free with teachers, students and other institutions ($M=4.40$) since the OER can fulfill the pedagogical



requirements in teaching to a great extent ($M=4.38$). They believed that OER not only saved their time ($M=4.35$); its use enabled the faculty to experiment with different teaching methods ($M=4.35$). Table-6.8 presents the statistics on perception of the respondents towards OER.

Table-6.8: Perception of the respondents towards OER (N=52)

Sr No	Statement	Freq./ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
a)	Having undergone the training workshops on OER, there is a positive change in my perception towards OER	Freq.	5	5	5	23	14	4	3.69	1.25
		%age	9.62	9.62	9.62	44.23	26.92			
b)	It gives me pleasure if someone adopts/adapts my educational resources	Freq.		1	1	23	27	3	4.46	0.64
		%age		1.92	1.92	44.23	51.92			
c)	Sharing OER enhances my personal and organisational reputation	Freq.			1	22	29	2	4.54	0.54
		%age			1.92	42.31	55.77			
d)	OER can fulfill the pedagogical requirements in teaching to a great extent	Freq.		2	3	20	27	3	4.38	0.77
		%age		3.85	5.77	38.46	51.92			
e)	OER helps to disseminate my ideas	Freq.		5		21	26	2	4.40	0.66
		%age		9.62		40.38	50.00			
f)	OER promote collaboration and networking	Freq.	1	2	7	22	20	4	4.12	0.92
		%age	1.92	3.85	13.46	42.31	38.46			
g)	I adopt OER for my teaching as they fulfill academic requirements of my students	Freq.		2	5	24	21	3	4.23	0.78
		%age		3.85	9.62	46.15	40.38			
h)	OER saves my time	Freq.			2	30	20	2	4.35	0.56
		%age			3.85	57.69	38.46			
i)	Use of OER enables the faculty to experiment with different teaching methods	Freq.			1	32	19	2	4.35	0.52
		%age			1.92	61.54	36.54			

Contd.

Sr No	Statement	Freq./ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
j)	Institutions should share educational resources for free with teachers, students and other institutions	Freq.				31	21	1	4.40	0.50
		%age				59.62	40.38			
k)	Teachers should use the educational resources created by others	Freq.	1	2	3	27	19	4	4.17	0.86
		%age	1.92	3.85	5.77	51.92	36.54			
l)	Students use the educational resources created by others for learning purpose	Freq.	1	5	6	23	17	4	3.96	1.01
		%age	1.92	9.62	11.54	44.23	32.69			

► 6.6 Impact of OER Training Workshops

The analysis of the data revealed that majority of the respondents (44.23% 'Agreed' and 26.92% 'Strongly Agreed') affirmed that participation in the capacity building workshops organised by CEMCA had a positive impact on their perception towards OER. The University-wise analysis of data made evident that 75% respondents from Bangladesh Open University, 76.19% respondents from Netaji Subhash Open University and 54.54% participants from Odisha State Open University had positive impact of the training workshops on their perception about OER. However, 36.36% respondents from Odisha State Open University were 'Undecided' on this aspect and were not able to make out any impact on their perception about OER. The University-wise data pertaining to impact of training workshops on perception of respondents about OER is presented as Table-6.9.

Table-6.9: Perception of respondents about impact of training workshops

Perception	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Strongly Disagreed	2	10.00	3	14.29	0	0.00	5	9.62
Disagreed	2	10.00	2	9.52	1	9.09	5	9.62
Undecided	1	5.00	0	0.00	4	36.36	5	9.62
Agreed	9	45.00	10	47.62	4	36.36	23	44.23
Strongly Agreed	6	30.00	6	28.57	2	18.18	14	26.92
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00



► 6.7 Use of OER by Learners

The participants were asked about their perception towards use of OER by their learners. The sub-scale developed for this purpose contained 15 items on different aspects of OER use by learners. The Cronbach Alpha Score was calculated to be .784 and this showed that the internal consistency of the scale was acceptable. The scale points ranged from ‘Strongly Disagreed’ (1 point) to ‘Strongly Agreed’ (5 points). The midpoint, i.e., ‘Undecided’ was given 3 points. The mean score of the sub-scale ranged from 3.42 to 4.5. Since the mean score in all the cases is above 3 that holds the neutral value, it can be considered that the respondents had a positive perception towards the statement given in the sub-scale. The respondents felt that use of the OER helped the learners in improving their performance (M=4.50) and its use led to equitable access to educational opportunities for students (M=4.44). They were of the opinion that OER helped the students to search for the learning resources as per their learning style (M=4.37) and, therefore, they attached a great value to use of OER (M=4.31). Since the relevant OER were already suggested by the faculty, students saved time on searching for them (M=4.29). The respondents felt that the OER enabled the students to spend lesser money on reference books and, therefore, were cost effective (M=4.29). They were of the opinion that the OER helped the institutions in following an inclusive approach since the former could provide additional content support to marginalised learners. The respondents affirmed that the students not only used the content available on the University Repository (M=4.08) but also used different OER Repositories for enriching their learning (M=4.04). The statistics on perception of teachers towards use of OER by learners are presented in Table-6.10.

Table-6.10: Perception of teachers towards use of OER by learners (N=52)

Sr No	Statement	Freq./ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
a)	Use of the OER helps in improving the student performance	Freq.			2	22	28	2	4.50	0.58
		%age			3.85	42.31	53.85			
b)	Students attach great value to use of OER.	Freq.		1	1	31	19	3	4.31	0.61
		%age		1.92	1.92	59.62	36.54			
c)	OER use leads to equitable access to educational opportunities for students	Freq.				29	23	1	4.44	0.50
		%age				55.77	44.23			
d)	Students are aware of the uses of OERs for their learning	Freq.		4	9	28	11	3	3.88	0.83
		%age		7.69	17.31	53.85	21.15			

Contd.

Sr No	Statement	Freq./ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
e)	Students are comfortable in finding relevant OERs	Freq.		6	12	26	8	3	3.69	0.88
		%age		11.54	23.08	50.00	15.38			
f)	Students use the content available on the University Repository	Freq.		4	5	26	17	3	4.08	0.86
		%age		7.69	9.62	50.00	32.69			
g)	Students use different OERs in addition to University Repositories for enriching their learning	Freq.		2	8	28	14	3	4.04	0.77
		%age		3.85	15.38	53.85	26.92			
h)	Use of OER is an effective way of engaging the learners	Freq.	2	6	5	23	16	4	3.87	1.10
		%age	3.85	11.54	9.62	44.23	30.77			
i)	OER can provide additional support to marginalised learners	Freq.		2	2	30	18	3	4.23	0.70
		%age		3.85	3.85	57.69	34.62			
j)	OER helps the students to search for the learning resources as per their learning style.	Freq.				30	22	1	4.42	0.50
		%age				57.69	42.31			
k)	Since the relevant OER are already suggested by the faculty, students save time on searching for them.	Freq.			5	27	20	2	4.29	0.64
		%age			9.62	51.92	38.46			
l)	The OER enables the students to access the content produced by the eminent subject experts.	Freq.			3	27	22	2	4.37	0.60
		%age			5.77	51.92	42.31			
m)	Use of the OER helps the students to get deeper knowledge of the topic.	Freq.	3	4	9	18	18	4	3.85	1.16
		%age	5.77	7.69	17.31	34.62	34.62			

Contd.



Sr No	Statement	Freq./ %age	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed	Range	Mean	Std. Deviation
n)	OER enables the students to spend lesser money on reference books and therefore, is cost effective.	Freq.	1	2	1	25	23	4	4.29	0.85
		%age	1.92	3.85	1.92	48.08	44.23			
o)	The learners are happy if the material/ reports and other content created by them are uploaded as OER.	Freq.	3	6	18	16	9	4	3.42	1.09
		%age	5.77	11.54	34.62	30.77	17.31			

► 6.8 Improvement of Student Performance with Use of OER

It was found from the analysis of the responses received from the participants pertaining to impact of OER on student performance that majority of the respondents (42.31% 'Agreed' and 53.85% 'Strongly Agreed') accepted that use of OER had helped the students in improving their performance. The University-wise analysis revealed that all the respondents (45% 'Agreed' and 55% 'Strongly Agreed') belonging to Bangladesh Open University felt that OER use helped in improving the student performance. In case of Netaji Subhash Open University, 95.23% respondents felt that use of OER helped the students in improving their performance. Similarly, majority of participants (42.31% 'Agreed' and 53.85% 'Strongly Agreed') commented positively to this statement. The University-wise data pertaining to impact of OER use on student performance is presented as Table-6.11.

Table-6.11: Perception of respondents about improvement of student performance with use of OER

Perception	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Strongly Disagreed	0	0.00	0	0.00	0	0.00	0	0.00
Disagreed	0	0.00	0	0.00	0	0.00	0	0.00
Undecided	0	0.00	1	4.76	1	9.09	2	3.85
Agreed	9	45.00	7	33.33	6	54.55	22	42.31
Strongly Agreed	11	55.00	13	61.90	4	36.36	28	53.85
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

► 6.9 Use of OER Platforms by Students

The respondents were asked to report as to which of the online platforms the learners used more frequently to augment their learning. The analysis of the responses (N=52) revealed that the learners liked to use the following online platforms invariably in addition to their university repository to enrich their learning experience:

Coursera, Edx, e-PG Paathshalla, University repository, Google Classroom, OER Commons, Scribd, blogs on the relevant subject from Google, Creative Commons, Dspace, e-Gyanagar (OSOU), Swayam, Khan Academy, university LMS, MERLOT, NROER, Schoology, UNESCO portal, YouTube for Video lectures, Wikipedia, WikiEducator, and other relevant online platforms.

► 6.10 Use of Search Engine(s) by Students

This item sought opinion of the faculty about use of search engines by the learners for finding out relevant OER and free content online. The analysis of the responses revealed that majority of respondents (65.38%) felt that the learners used Google search engine in a big way. Other search engines used by the learners were FireFox (7.69), OER Commons (5.77%), and Yahoo (5.77%). The distribution of responses on the basis of search engines used by the learners for finding relevant resources on the Internet is presented as Table-6.12.

Table-6.12: Perception of Faculty about use of search engines by the learners

Sr No	Search Engine	Freq.	%age
a)	Google	34	65.38
b)	Jorum	1	1.92
c)	OER Commons	3	5.77
d)	Wikipedia	1	1.92
e)	Khan Academy	1	1.92
f)	Coursera	1	1.92
g)	Firefox	4	7.69
h)	creative commons	1	1.92
i)	Yahoo	3	5.77
j)	BOU website	1	1.92
k)	DSpace	1	1.92
l)	e- pathsala	1	1.92
m)	Not known	5	9.62

► 6.11 Purpose of Use of OER by Students

The respondents were asked to report about the possible use of OER by the learners for different purposes. The respondents reported that the learners used the OER and other online resources for the following purposes:



To enhance the knowledge and skills to attempt any question; tutorial purposes; to download M.C.Q; MOOCs; online lectures if they missed classes; getting textbooks and video lectures; learning theory chapters; preparing project; seeking reference material; getting advanced and updated knowledge of any subject; getting access to diagrams and graphics; verify an information received by them from other sources; write articles and prepare their lessons/notes; write assignments; prepare project papers; listen to audio; download images; create PPT for presentation; to get study materials and reference study materials; to build up their interest in a topic, enhance their knowledge; read books and watch videos; find reference texts, examples and easier explanations; quantitative and qualitative exploration, and assignment preparation as well as final examinations.

The analysis shows that the students had extensive knowledge of using the OER for different purposes. They have been found making optimal use of the resources available as OER.

► 6.12 Type of OER Content Used by the Students

The OER and other content are available on the Internet in different formats. Some students may like to watch online videos while some others may like to listen to audios for preparing their lectures. In other cases, the students might download some specific material, images, ppts and pdf files to enhance their learning. It was thought appropriate to know the interest of the learners in different formats of the content available online. On the question as to which type of online contents/OER the learners were interested in, the respondents informed that the learners preferred to use the online content as text files, e-resources (self learning materials), audio and video lessons, field and research manuals, information in a scientific presentation, eBook, articles, pictures, PPT, PDF files, and images. The students were mostly looking for the resources which were easily downloadable and convertible to other formats.

► 6.13 Awareness of Faculty About OER Licensing Policy

The sub-scale measuring the awareness of faculty about OER licensing policy contained seven items. The Cronbach Alpha score was calculated to be 0.773 showing good internal consistency among different items of the sub-scale. The scale points ranged from 'Not at all' (1 point) to 'To a Very Great Extent' (5 points). The mean score of the items in the sub-scale ranged from 3.62 to 4.35 which means the respondents had a positive opinion about all the items (1 being the neutral score in this case). The respondents were confident that the OER policy of their University acknowledged the OER contribution made by the faculty ($M=4.35$). They themselves also valued the OER for use in teaching and learning process ($M=4.27$). They were confident that the knowledge of Creative Commons (CC) OER Licensing Policy helped them in judiciously using the OER created by others ($M=4.02$). They also felt

that the CC OER Licensing Policy helped the users in creating and contributing the material without losing their intellectual property rights (M=3.98). The respondents were not afraid of losing their copyright on their intellectual property by sharing it (M=3.94). This showed that the respondents were aware of the open licensing policy of Creative Commons and its different provisions (M=3.94). The statistics pertaining to awareness of the respondents about open licensing policy are presented in Table-6.13.

Table-6.13: Awareness of Faculty about Open Licensing Policy

Sr No	Statement	Freq./ %age	Not At All	Only a Little Extent	To Some Extent	To a Great Extent	To a Very Great Extent	Range	Mean	Std. Deviation
a)	The orientation workshops gave me clarity about different OER licensing policies in vogue	Freq.		3	16	20	13	3	3.83	0.88
		%age		5.77	30.77	38.46	25.00			
b)	I have knowledge of OER Licensing Policy and Copyrights related to OER	Freq.		5	19	19	9	3	3.62	0.89
		%age		9.62	36.54	36.54	17.31			
c)	I am not afraid of losing my copyright on my intellectual property by sharing it	Freq.	1	4	13	13	21	4	3.94	1.07
		%age	1.92	7.69	25.00	25.00	40.38			
d)	The CC OER Licensing Policy helps the users in creating and contributing the material without losing their IPR	Freq.		2	11	25	14	3	3.98	0.80
		%age		3.85	21.15	48.08	26.92			
e)	The CC OER Licensing Policy helps in judiciously using the OER created by others	Freq.		1	9	30	12	3	4.02	0.70
		%age		1.92	17.31	57.69	23.08			
f)	I value the OER for use in teaching and learning process	Freq.			6	26	20	2	4.27	0.66
		%age			11.54	50.00	38.46			
g)	The OER policy of my University acknowledges the OER contribution of the faculty	Freq.		1	6	19	26	3	4.35	0.76
		%age		1.92	11.54	36.54	50.00			



► 6.14 Clarity Pertaining to OER Licensing Policies

The capacity building workshops were organised to provide the participants the clarity pertaining to different aspects of OER and enable them to get working knowledge of use and creation of OER and further share the resources as OER under a particular open license so that the users could take advantage of these resources without much restrictions on their use. The respondents were asked to report whether attending workshops provided them clarity about different open license policies. The respondents reported positively about the impact of the orientation workshops provided by CEMCA pertaining to OER licensing policies. Though, they had varied degree of clarity consequent upon attending these workshops. It was found from the University-wise analysis of data that from BOU, 40% respondents had clarity of OER licensing policies ‘To a Great Extent’ followed by 20% respondents who had clarity of the OER licensing policies ‘To a Very Great Extent’. In case of NSOU, 38.10% respondents had clarity ‘To a Great Extent’ along with 33.33% respondents who had clarity ‘To a Very Great Extent’. Similarly, from OSOU, 36.36% respondents had clarity ‘To a Great Extent’ and 18.18% respondents had clarity of OER licensing policies ‘To a Very Great Extent’. There was no respondent who had not been influenced by the orientation workshops in clarifying different points pertaining to OER licensing policies to them. The University-wise distribution of responses on this statement is presented as Table-6.14.

Table-6.14: Perception of respondents about clarity of OER licensing policy after attending Orientation Workshops

Perception	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Not At All	0	0.00	0	0.00	0	0.00	0	0.00
Only a Little Extent	3	15.00	0	0.00	0	0.00	3	5.77
To Some Extent	5	25.00	6	28.57	5	45.45	16	30.77
To a Great Extent	8	40.00	8	38.10	4	36.36	20	38.46
To a Very Great Extent	4	20.00	7	33.33	2	18.18	13	25.00
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

► 6.15 Motivation Mechanism for OER Functionaries

The motivation of the users plays an important role in promoting use and sharing of OER. At the institutional level, the users can be motivated in different ways. This item sought from the respondents the information pertaining to different mechanisms

adopted by their institutions for motivating their faculty for promotion of OER. The analysis of the responses revealed that as many as 46.15% respondents affirmed that their university gave preference to the OER users in faculty development schemes. Other 44.23% respondents mentioned that the faculty members involved in OER activities were given appreciation letter which motivated them further to do better for promotion of OER. Quite a good number of respondents (32.69%) reported that the faculty involved with OER were given weightage in Academic Performance Indicator (API) scores which helped them in seeking next upward movement in their career. As many as 11.54% respondents had no knowledge as to whether there is any such provision prevalent in their institution. The distribution of responses on the basis of the type of incentive granted to the OER promoting faculty is presented in Table-6.15.

Table-6.15: Distribution of responses on the basis of type of incentive for OER promotion

Sr No	Type of incentive	Freq.	%age
1	Appreciation letter	23	44.23
2	Monitory incentive	13	25.00
3	Purchase of additional books	9	17.31
4	Preference given in faculty development schemes	24	46.15
5	Weightage in Academic Performance Indicator (API) Score of teachers	17	32.69
6	No provision	9	17.31
7	Not known	6	11.54

► 6.16 Use of OER for Teaching and Learning

The sub-scale used for seeking the status of OER usage by faculty for teaching and learning purposes contained 13 items. The Cronbach Alpha Score was calculated as 0.938 which showed high internal consistency among the items of the sub-scale. The scale points ranged from 'Not at all' (1 point) to 'To a Very Great Extent' (5 points). The mean score of the items ranged from 3.17 to 3.87 which showed a positive inclination of the responses (1 being the neutral score). It was revealed that majority of the respondents had a positive experience in using the OER for Teaching purposes ($M=3.87$). They felt that use of OER was inbuilt in the instructional design of the programmes in their University ($M=3.67$). The respondents used presentation/ demonstration files ($M=3.56$), image files ($M=3.52$), and text files ($M=3.48$) from the OER. They were able to find OER on the Web as per their requirements ($M=3.44$) and tried to engage the students with the help of online activities like assignments, quizzes etc. ($M=3.44$). The status of OER use by the respondents for teaching and learning purposes is presented as Table-6.16.

**Table-6.16:** Distribution of respondents on the basis of use of OER for teaching and learning

Sr No	Statement	Freq./ %age	Not At All	Only a Little Extent	To Some Extent	To a Great Extent	To a Very Great extent	Range	Mean	Std. Deviation
a)	My experience in using the OER for Teaching purpose has been positive	Freq.	2	3	10	22	15	4	3.87	1.03
		%age	3.85	5.77	19.23	42.31	28.85			
b)	Use of OER is inbuilt in the instructional design of the programmes in the University	Freq.		6	14	23	9	3	3.67	0.90
		%age		11.54	26.92	44.23	17.31			
c)	I use Text files from the OER	Freq.	4	9	8	20	11	4	3.48	1.23
		%age	7.69	17.31	15.38	38.46	21.15			
d)	I use Images files from the OER	Freq.	4	7	11	18	12	4	3.52	1.21
		%age	7.69	13.46	21.15	34.62	23.08			
e)	I use Graphics from the OER	Freq.	9	5	13	12	13	4	3.29	1.40
		%age	17.31	9.62	25.00	23.08	25.00			
f)	I use Data Tables/ sheets from the OER	Freq.	8	5	14	13	12	4	3.31	1.35
		%age	15.38	9.62	26.92	25.00	23.08			
g)	I use Audio files from the OER	Freq.	5	8	14	16	9	4	3.31	1.21
		%age	9.62	15.38	26.92	30.77	17.31			
h)	I use Video files from the OER	Freq.	4	7	15	15	11	4	3.42	1.19
		%age	7.69	13.46	28.85	28.85	21.15			
i)	I use Presentations/ demonstration files from the OER	Freq.	2	8	12	19	11	4	3.56	1.11
		%age	3.85	15.38	23.08	36.54	21.15			
j)	I create online groups of students to share information with them	Freq.	9	5	10	20	8	4	3.25	1.33
		%age	17.31	9.62	19.23	38.46	15.38			
k)	I create discussion form for the students	Freq.	10	4	13	17	8	4	3.17	1.34
		%age	19.23	7.69	25.00	32.69	15.38			
l)	I am able to find OER on the web as per my requirement	Freq.	4	3	19	18	8	4	3.44	1.07
		%age	7.69	5.77	36.54	34.62	15.38			
m)	I try to engage the students with the help of online activities like assignments, quizzes etc.	Freq.	3	5	21	12	11	4	3.44	1.11
		%age	5.77	9.62	40.38	23.08	21.15			

► 6.17 Experience in Using the OER

The respondents were asked to share their experience about using the OER for teaching purposes. The analysis of the data revealed that majority of respondents (42.31% ‘To a Great Extent’ and 28.85% ‘To a Very Great Extent’) had a positive experience in using the OER for teaching purposes. Similar trend of positivity experience was visible when the data was analysed University-wise. As many as 60% respondents from BOU, 90.48% respondents from NSOU and 54.54% respondents from OSOU had a great experience in using OER for teaching purposes. The University-wise distribution of respondents on experience in use of OER in teaching is presented as Table-6.17.

Table-6.17: Distribution of respondents on the basis of positive experience in using OER

Perception	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Not At All	2	10.00		0.00		0.00	2	3.85
Only a Little Extent	2	10.00	1	4.76		0.00	3	5.77
To Some Extent	4	20.00	1	4.76	5	45.45	10	19.23
To a Great Extent	7	35.00	11	52.38	4	36.36	22	42.31
To a Very Great Extent	5	25.00	8	38.10	2	18.18	15	28.85
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

► 6.18 Providing OER Material to My Learners

The respondents were asked as to by which method did they provide the OER material to their learners. The analysis of the responses revealed that majority of respondents (59.62%) provided link of the OER to their learners which were downloadable from the Web. The OER content was also provided by some of the participants (40.38%) through LMS. Almost 38.46% participants provided the eContent through pen drive/CD, and in print form. Interestingly, 17.31% respondents provided the content through cloud storage while other 3.85% used social media groups and posts to disseminate the content. The method-wise distribution of respondents for providing content to the learners is presented as Table-6.18.

**Table-6.18:** Method-wise distribution of respondents for providing eContent

Sr No	Method to provide OER material	Freq.	%age
a)	Link to OER is provided to the learners	31	59.62
b)	Through cloud storage device	9	17.31
c)	Downloadable from web	31	59.62
d)	In print form	20	38.46
e)	Through pen drive/USB/CD	20	38.46
f)	Through LMS	21	40.38
g)	Through social media groups and posts	2	3.85
h)	Not yet used	2	3.85

► 6.19 Purposes of Use of OER in Teaching

It is evident that the OER play an important role in teaching and learning practices. The teachers and learners are their potential beneficiaries. The current item sought the information from the participants as to for which of the purposes did they use the OER in the teaching process. The analysis of the responses revealed that majority of the respondents (78.85%) used the OER in teaching for enrichment of the learning experience of the learners. As many as 69.23% respondents used the OER for explaining a topic or concept to the learners. At times the OER were also used as additional reading material for the learners (67.31%). As many as 40.23% respondents made use of OER to provide a list of additional reading resources to the students. In case of 28.85% participants, the OER were used to substantiate the argument and to provide self-evaluation exercises. The distribution of respondents on the basis of purpose of OER use is presented as Table-6.19.

Table-6.19: Distribution of respondents on the basis of purpose of OER use

Sr No	Purpose of OER use in Teaching	Freq.	%age
a)	To enrich the learning experience	41	78.85
b)	To explain the topic/concept	36	69.23
c)	As additional material	35	67.31
d)	To list additional reading resources	23	44.23
e)	To substantiate the argument	15	28.85
f)	To provide self-evaluation exercise	15	28.85

► 6.20 Use of OER for SLM Development

The sub-scale to know the extent of use of OER for SLM development by the faculty contained 12 items in all. The Cronbach Alpha Score was calculated to be 0.938.

The scale points ranged from 'Not at all' (1 point) to 'To a Very Great Extent' (5 points). The range of mean scores of the items spread from 2.98 to 2.67 (1 being the neutral score since all scores were in positive). Therefore, all the scores projected an inclination towards the statement made. As reported by them, the respondents enjoyed using the OER for SLM development (M=3.67), rather they preferred to use OER for SLM development (M=3.56). They favoured use of image files (M=3.54), text files (M=3.50), graphics (M=3.40) and video files (M=3.40) from the OER. The statistics on use of OER for SLM development by faculty are presented as Table-6.20.

Table-6.20: Distribution of responses on use of OER for SLM development

Sr No	Statement	Freq./ %age	Not At All	Only a Little Extent	To Some Extent	To a Great Extent	To a Very Great extent	Range	Mean	Std. Deviation
a)	I prefer to use OER for SLM development	Freq.	6	5	11	14	16	4	3.56	1.33
		%age	11.54	9.62	21.15	26.92	30.77			
b)	I use the OER for SLM in their original form	Freq.	7	9	17	16	3	4	2.98	1.13
		%age	13.46	17.31	32.69	30.77	5.77			
c)	I use the OER after re-purposing them	Freq.	5	5	14	22	6	4	3.37	1.12
		%age	9.62	9.62	26.92	42.31	11.54			
d)	I curate the existing content for my SLM	Freq.	7	4	16	22	3	4	3.19	1.12
		%age	13.46	7.69	30.77	42.31	5.77			
e)	I enjoy using the OER for SLM development	Freq.	1	5	14	22	10	4	3.67	0.96
		%age	1.92	9.62	26.92	42.31	19.23			
f)	I use Text files from the OER	Freq.	3	5	16	19	9	4	3.50	1.08
		%age	5.77	9.62	30.77	36.54	17.31			
g)	I use Images files from the OER	Freq.	5	4	13	18	12	4	3.54	1.21
		%age	9.62	7.69	25.00	34.62	23.08			
h)	I use Graphics from the OER	Freq.	7	5	12	16	12	4	3.40	1.32
		%age	13.46	9.62	23.08	30.77	23.08			
i)	I use Data Tables/ sheets from the OER	Freq.	4	8	16	15	9	4	3.33	1.17
		%age	7.69	15.38	30.77	28.85	17.31			
j)	I use Audio files from the OER	Freq.	5	7	19	10	11	4	3.29	1.23
		%age	9.62	13.46	36.54	19.23	21.15			
k)	I use Video files from the OER	Freq.	5	6	15	15	11	4	3.40	1.22
		%age	9.62	11.54	28.85	28.85	21.15			
l)	I use Presentations/ demonstration files from the OER	Freq.	4	10	12	15	11	4	3.37	1.24
		%age	7.69	19.23	23.08	28.85	21.15			



► 6.21 Form of Use of OER for SLM Development

The use of eContent and other digital educational resources can be made in development of SLM by teachers in their original form or after making certain changes to it. In order to make the content suitable to local conditions, the teachers needed to customise the content appropriately. The current question sought a response from the participants as to how did they use the content. The analysis of the responses revealed that majority of the respondents (55.77%) used the OER as a mix of both – in original form and after customisation. However, as many as 30.77% respondents mentioned that they used the content after customisation only, as against 13.46% who liked to use the content in its original form. The distribution of responses on the basis of type of use of OER in SLM development by respondents is presented as Table-6.21.

Table-6.21: Distribution of respondents on the basis of form of OER use in SLM development

Sr No	Use of OER in SLM development	Freq.	%age
a)	After customisation	16	30.77
b)	A mix of both the above	29	55.77
c)	In original form	7	13.46
		52	100.00

► 6.22 Purposes of Use of OER in SLM Development

While it was known that the teachers were making use of OER in development of self-learning material, it was interesting to know as to for which of the purposes did they use the content. The analysis of the responses sought against this question revealed that majority of respondents invariably used the OER in SLM development to enrich the learning experience of the learners (67.31%), explain the topic / content to the learners (61.54%), and to provide as additional learning material (59.62%). As many as 44.23% of the respondents used the OER to provide a list of additional reading resources to the learners, substantiate the argument (25%), and provide self-evaluation exercises (25%). The purpose of use of OER for SLM development showed the skills of the respondents in molding the educational resources to suit their use. The Table-6.22 presents the statistics relating to purposive use of OER by respondents for SLM development.

Table-6.22: Distribution of responses on the basis of purpose of OER USE in SLM development

Sr No	Purpose of OER use in SLM	Freq.	%age
a)	To enrich the learning experience	35	67.31
b)	To explain the topic/concept	32	61.54

Contd.

Sr No	Purpose of OER use in SLM	Freq.	%age
c)	As additional material	31	59.62
d)	To list additional reading resources	23	44.23
e)	To substantiate the argument	13	25.00
f)	To provide self-evaluation exercise	13	25.00

► 6.23 No. of Courses Developed with the Help of OER

Consequent upon the capacity enhancement of the faculty by CEMCA, it was expected that the faculty would be actively involved in making use of their skills in development of courses with the help of OER. The faculty was asked to report as to the number of courses developed by them using the OER. The analysis of the responses revealed that the respondents had developed over 100 courses in different disciplines and areas in all. It was found that majority of respondents (61.54%) had developed courses in various numbers ranging from 1 to 10 courses. However, 38.46% respondents had developed no course with the help of OER. As many as 19.23% respondents had developed at least 3 courses each. The highest number of courses (10 courses) had been developed by 1.92% respondents. The percentage of respondents developing 1 course each was 13.46. As many as 15.38% respondents had developed at least 2 courses each. Another group of 3.85% respondents had developed at least 8 courses each. The statistics on development of courses by the faculty with the assistance of OER are presented in Table-6.23.

Table-6.23: Distribution of respondents on the basis of number of courses developed

Sr No	No. of Courses developed by a Faculty	Frequency	%age	Total No. of Courses Developed
a)	5 Courses	3	5.77	15
b)	8 Courses	2	3.85	16
c)	1 Course	7	13.46	7
d)	2 Courses	8	15.38	16
e)	3 Courses	10	19.23	30
f)	10 Courses	1	1.92	10
g)	6 Courses	1	1.92	6
h)	No course developed	20	38.46	0
	Total	52	100.00	100



► 6.24 Extent of Use of OER in the Programmes Already Launched

The institutions under study have launched programmes in different areas which are on offer already. The respondents were asked to mention the extent of OER use in launch of those programmes. They were provided a list of options where they could select multiple options. Therefore, the aggregate of options chosen was expected to outweigh the number of respondents. The analysis of the responses revealed that as many as 40.38% respondents used OER as complimentary to the printed SLM as against 30.77% respondents who had used OER as supplementary to the printed SLM for launch of the programmes. The number of respondents (19.23%) who launched fully OER based programmes was also substantial. The respondents also used OER for continuous evaluation (19.23%) and summative evaluation (9.62%). As many as 13.46% participants had not used OER for their programmes as yet. The distribution of participants on the basis of extent of use of OER in launch of programmes is presented as Table-6.24.

Table-6.24: Distribution of respondents on the basis of extent of use of OER in launch of programmes (N=52)

Sr No	Extent of use of OER in programmes	Freq.	%age
a)	OER used as complimentary to the SLM in print	21	40.38
b)	Fully OER based	10	19.23
c)	OER used as supplementary to the SLM in print	16	30.77
d)	OER used for continuous evaluation	10	19.23
e)	OER used for summative evaluation purposes	5	9.62
f)	Not yet used	7	13.46

► 6.25 Sharing of OER by Faculty

The sub-scale meant to measure the perception of faculty about sharing of the educational resources created by them as OER contained 13 items in all. The Cronbach Alpha Score was calculated to be 0.903 showing internal consistency among the items of the sub-scale. The scale points ranged from 'Not at all' (1 point) to 'To a Very Great Extent' (5 points). The mean score of different items in the sub-scale ranged from 2.94 to 4.12. The mean scores showed a positive inclination of the respondents towards agreement to the statements. It was revealed from the analysis that the respondents not only preferred to share the content developed by them as OER (M=4.12) but also enjoyed sharing the content (M=4.06). They found reaction of their colleagues over their sharing the resources as positive (M=3.65). The respondents usually shared presentation/ demonstration files as OER (M=3.52) followed by text files (M=3.46) and video files (M=3.46). The other types of content shared by them as OER was graphics (M=3.35), audio files (M=3.35), images files

(M=3.31), and newly created eContent (M=3.31). The distribution of participants on sharing of the content created by them as OER is presented as Table-6.25.

Table-6.25: Perception of faculty towards sharing of OER

Sr No	Statement	Freq./ %age	Not At All	Only a Little Extent	To Some Extent	To a Great Extent	To a Very Great extent	Range	Mean	Std. Deviation
a)	I prefer to share the content developed by me	Freq.	2	2	12	8	28	4	4.12	1.13
		%age	3.85	3.85	23.08	15.38	53.85			
b)	I enjoy sharing the content developed by me as OER	Freq.	1	3	6	24	18	4	4.06	0.94
		%age	1.92	5.77	11.54	46.15	34.62			
c)	Reaction of my colleagues over my sharing the resources is positive	Freq.	3	7	10	17	15	4	3.65	1.20
		%age	5.77	13.46	19.23	32.69	28.85			
d)	I share the newly created e-content as OER	Freq.	9	2	16	14	11	4	3.31	1.34
		%age	17.31	3.85	30.77	26.92	21.15			
e)	I share the curated content as OER	Freq.	6	3	19	20	4	4	3.25	1.08
		%age	11.54	5.77	36.54	38.46	7.69			
f)	I share the tweaked/re-purposed/revised content as OER	Freq.	11	4	18	15	4	4	2.94	1.24
		%age	21.15	7.69	34.62	28.85	7.69			
g)	I share Text files as OER	Freq.	4	4	16	20	8	4	3.46	1.09
		%age	7.69	7.69	30.77	38.46	15.38			
h)	I share Images files as OER	Freq.	6	5	15	19	7	4	3.31	1.18
		%age	11.54	9.62	28.85	36.54	13.46			
i)	I share Graphics as OER	Freq.	8	3	12	21	8	4	3.35	1.27
		%age	15.38	5.77	23.08	40.38	15.38			
j)	I share Data Tables/ sheets as OER	Freq.	7	5	15	18	7	4	3.25	1.22
		%age	13.46	9.62	28.85	34.62	13.46			
k)	I share Audio files as OER	Freq.	7	3	18	13	11	4	3.35	1.27
		%age	13.46	5.77	34.62	25.00	21.15			
l)	I share Video files as OER	Freq.	5	4	16	16	11	4	3.46	1.20
		%age	9.62	7.69	30.77	30.77	21.15			
m)	I share Presentations/ demonstration files as OER	Freq.	5	5	14	14	14	4	3.52	1.26
		%age	9.62	9.62	26.92	26.92	26.92			



► 6.26 Frequency of Sharing the OER

The participants were asked to mention the frequency of sharing of OER over the past 2 years. They were provided three categories under which sharing of the OER could be done such as original content, curated content and re-purposed content. The analysis of the data revealed that majority of the respondents had shared the original content (59.62%), curated content (46.15) and re-purposed content (57.69) less than 5 times. Similarly some of the respondents shared the original content (17.31%), curated content (19.23%) and re-purposed content (15.38%) six to ten times. Only 1.92% respondents had shared the original content, curated content and re-purposed content more than 50 times. The distribution of respondents on the basis of frequency of sharing the OER is presented as Table-6.26.

Table-6.26: Distribution of respondents on the basis of number of times of sharing the OER

Sr No.	Number of time the OER Shared	Original Content		Curated Content		Re-purposed content	
		Freq.	%age	Freq.	%age	Freq.	%age
a)	Less than 5 times	31	59.62	24	46.15	30	57.69
b)	6 to 10 times	9	17.31	10	19.23	8	15.38
c)	11 to 15 times	4	7.69	2	3.85	1	1.92
d)	16 to 25 times	1	1.92	2	3.85	3	5.77
e)	26 to 50 times	0	0	0	0	0	0
f)	More than 50 times	1	1.92	1	1.92	1	1.92
g)	Not at all	6	11.54	13	25.00	9	17.31
	Total	52	100.00	52	100.00	52	100.00

► 6.27 Issues and Barriers

The sub-scale on issues and barriers sought to get the responses from the participants of the capacity building workshops conducted by CEMCA with regard to the factors which posed as challenges before the faculty in smoothly implementing the OER policy and promote OER by creating and sharing the educational resources. The scale contained 17 items in all, and the participants were asked to prioritise the 5 challenges which they felt most important to be redressed for promotion of OER, and rank them from 1st choice to 5th choice. In order to consider all the choices given by the respondents and allot a ranking to all the items, weighted score was taken by allotting 5 marks to first choice and 1 mark to fifth choice and so on. The overall ranking of the items was calculated on the basis of the weighted score. The analysis of the data revealed that 'lack of understanding of intellectual property licenses, copyrights and Creative Commons licenses' stood at Rank 1 with weighted score of 180 points. Other issues ranked by the respondents from 2 to 5 were: lack

of ICT skills required to create OER (Rank 2), lack of knowledge for using OER in teaching and learning process (Rank 3), lack of recognition and rewards system for developing OER (Rank 4), and lack of financial resources with the institution to invest in OER (Rank 5). In addition to the above, other issues identified by the respondents from Rank 6 to Rank 10 were: lack of technological support to resolve day to day issues (Rank 6), poor technical infrastructure (Rank 7), lack of training and capacity building opportunities in OER (Rank 8), sharing of expertise for the re-learning of OER Practices with other faculty members (Rank 9), and inability to find existing OER on topics of interest (Rank 10). The rank-wise issues and barriers highlighted by the respondents are presented as Table-6.27.

Table-6.27: Rank-wise presentation of issues and barriers highlighted by respondents

Sr No	Issues and Barriers	Choice					Cum-ulative Score	% Resp-ones	Weight-ted Score	Rank
		1	2	3	4	5				
a)	Lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses.	22	9	9	2	3	45	86.5	180	1
b)	Lack of knowledge for using OER in my teaching and learning process	12	11	10	7	3	43	82.7	151	3
c)	Lack of ICT skills required to create OER	14	11	11	4	4	44	84.6	159	2
d)	Lack of recognition and rewards system for developing OER	12	10	7	6	5	40	76.9	138	4
e)	Lack of financial resources with the institution to invest in OER	12	10	9	2	7	40	76.9	138	5
f)	Lack of technological support to resolve day to day issues	10	11	6	6	7	40	76.9	131	6
g)	Non-availability of OER for certain disciplines	10	7	5	6	7	35	67.3	112	13
h)	Inability to find existing OER on topics of my interest	8	12	6	4	4	34	65.4	118	10
i)	Incompatibility of OER to my university Learning Management System (LMS)	11	4	13	1	6	35	67.3	118	11
j)	Poor technical infrastructure	12	6	9	4	2	33	63.5	121	7
k)	Lack of faculty interest to engage in OER activities	11	6	9	3	4	33	63.5	116	12

Contd.



Sr No	Issues and Barriers	Choice					Cum-ulative Score	% Resp-ones	Weigh-ted Score	Rank
		1	2	3	4	5				
l)	Inadequate programme development facilities	8	8	8	2	6	32	61.5	106	16
m)	Work overload on teachers	7	8	9	3	5	32	61.5	105	17
n)	Lack of motivation/incentive /appreciation of teachers for OER engagement	10	8	5	4	5	32	61.5	110	14
o)	Lack of training and capacity building opportunities in OER	11	9	7	2	5	34	65.4	121	8
p)	Sharing of expertise for the re-learning of OER Practices with other faculty members	8	11	8	4	3	34	65.4	119	9
q)	Indifferent attitude of management towards OER	8	10	7	2	5	32	61.5	110	15

Issue at Rank No. 1: lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses

The issues and barriers ranked by the respondents up to 5th level were taken further for analysis one by one. The analysis revealed that issue pertaining to 'lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses' which had an overall ranking of No. 1, was ranked at No. 1 by 50% respondents from BOU, 28.57% respondents from NSOU and 54.55% respondents from OSOU. This means that the respondents from NSOU had better understanding of licensing system in comparison to BOU and OSOU. Rank-wise distribution of respondents for lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses is presented in Table-6.28.

Table-6.28: Rank-wise distribution of respondents for lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses

Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 1	10	50.00%	6	28.57%	6	54.55%	22	42.31%
Rank 2	6	30.00%	1	4.76%	2	18.18%	9	17.31%
Rank 3	3	15.00%	5	23.81%	1	9.09%	9	17.31%
Rank 4		0.00%	2	9.52%		0.00%	2	3.85%
Rank 5	1	5.00%	2	9.52%		0.00%	3	5.77%
All Others	0	0.00%	5	23.81%	2	18.18%	7	13.46%
Grand Total	20	100.00%	21	100.00%	11	100.00%	52	100.00%

Issue at Rank No. 2: Lack of knowledge for using OER in teaching and learning process

The issue pertaining to lack of knowledge for using OER in teaching and learning process which had an overall ranking of No. 2, had been ranked at No. 1 by 30% respondents from BOU, 9.52% respondents from NSOU and 36.36% respondents from OSOU. This means the respondents from NSOU had a good knowledge of using OER in teaching and learning processes in comparison to respondents from other two universities. Rank-wise distribution of respondents for lack of knowledge for using OER in teaching and learning process is presented in Table-6.29.

Table-6.29: Rank-wise distribution of respondents for lack of knowledge for using OER in teaching and learning process

Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 1	6	30.00	2	9.52	4	36.36	12	23.08
Rank 2	4	20.00	5	23.81	2	18.18	11	21.15
Rank 3	4	20.00	6	28.57		0.00	10	19.23
Rank 4	3	15.00	2	9.52	2	18.18	7	13.46
Rank 5	1	5.00	1	4.76	1	9.09	3	5.77
All Others	2	10.00	5	23.81	2	18.18	9	17.31
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

Issue at Rank No. 3: Lack of ICT skills required to create OER

The issue pertaining to lack of ICT skills required to create OER had an overall ranking at No. 3. The analysis of data further revealed that as many as 25% respondents from BOU, 23.81% respondents from NSOU, and 36.36% respondents from OSOU had kept this issue at Rank No. 1. Similarly, 35% respondents from BOU, 9.52% respondents from NSOU and 18.18% respondents from OSOU had kept this issue at Rank No. 2. The Rank-wise distribution of respondents for lack of ICT skills required to create OER is presented in Table-6.30.

Table-6.30: Rank-wise distribution of respondents for lack of ICT skills required to create OER

Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 1	5	25.00	5	23.81	4	36.36	14	26.92
Rank 2	7	35.00	2	9.52	2	18.18	11	21.15
Rank 3	3	15.00	6	28.57	2	18.18	11	21.15
Rank 4	2	10.00	1	4.76	1	9.09	4	7.69

Contd.



Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 5	1	5.00	3	14.29		0.00	4	7.69
All Others	2	10.00	4	19.05	2	18.18	8	15.38
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

Issue at Rank No. 4: Lack of recognition and reward system for developing OER

The issue pertaining to lack of recognition and reward system for developing OER had an overall ranking at No. 4. The analysis of data revealed that as many as 20% respondents from BOU, 19.05% respondents from NSOU and 36.36% respondents from OSOU had kept this issue at Rank No. 1. Similarly, 35% respondents from BOU, 9.52% respondents from NSOU and 9.09% respondents from OSOU had kept this issue at Rank No. 2. The Rank-wise distribution of respondents for lack of recognition and rewards system for developing OER is presented in Table-6.31.

Table-6.31: Rank-wise distribution of respondents for lack of recognition and reward system for developing OER

Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 1	4	20.00	4	19.05	4	36.36	12	23.08
Rank 2	7	35.00	2	9.52	1	9.09	10	19.23
Rank 3	3	15.00	3	14.29	1	9.09	7	13.46
Rank 4	3	15.00	3	14.29		0.00	6	11.54
Rank 5	1	5.00	3	14.29	1	9.09	5	9.62
All Others	2	10.00	6	28.57	4	36.36	12	23.08
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

Issue at Rank No. 5: Lack of financial resources with the institution to invest in OER

The lack of financial resources with the institution to invest in OER had an overall ranking at No. 4 in the issues ranked by the respondents. It was found from further analysis of data that as many as 30% respondents from BOU, 14.29% respondents from NSOU and 27.27% respondents from OSOU had kept this issue at Rank No. 1. Similarly, 15% respondents from BOU, 28.57% respondents from NSOU and 9.09% respondents from OSOU had kept this issue at Rank No. 2. The respondents who had kept this issue at Rank No. 3 were: 30% from BOU, 4.76% from NSOU

and 18.18% from OSOU. The Rank-wise distribution of respondents for lack of financial resources with the institution to invest in OER is presented in Table-6.32.

Table-6.32: Rank-wise distribution of respondents for lack of financial resources with the institution to invest in OER

Rank	Bangladesh Open University		Netaji Subhash Open University		Odisha State Open University		Total	
	Freq.	%age	Freq.	%age	Freq.	%age	Freq.	%age
Rank 1	6	30.00	3	14.29	3	27.27	12	23.08
Rank 2	3	15.00	6	28.57	1	9.09	10	19.23
Rank 3	6	30.00	1	4.76	2	18.18	9	17.31
Rank 4	1	5.00	1	4.76		0.00	2	3.85
Rank 5	2	10.00	5	23.81		0.00	7	13.46
All Others	2	10.00	5	23.81	5	45.45	12	23.08
Grand Total	20	100.00	21	100.00	11	100.00	52	100.00

► 6.28 Suggestions

The participants were asked to provide suggestions to resolve issues and remove barriers faced by them in use, sharing and promotion of OER in their institutions. They were provided a checklist of 14 items, and any issue or barrier not falling in the list could be added to the same. They could give multiple suggestions. The analysis of the data showed that highest number of respondents (82.69%) suggested that effective technical support should be provided to the faculty working for the OER which was followed by: more training and staff development opportunities should be provided (75%), OER policy should adopt more flexible approach (71.15%), incentive should be given to the faculty involved in OER activities (67.31%), infrastructure should be upgraded to suit the changing requirements for OER practices (65.38%), the OER should be integrated in the educational programmes through instruction design (65.38%), and OER culture should be developed and encouraged in the University (65.38%). As many as 63.46% respondents emphasised that the quality assurance mechanism should be strengthened and in-house facilities for OER development should be enhanced (61.54%). Other suggestions offered by the respondents were: due weightage/credit should be given to the faculty for use/development and sharing the OER (59.62%), OER communities should be developed in the University (55.77%), more funds should be allocated for development of OER (55.77%), monitoring mechanism for OER activities should be developed (51.92%), and collaborative approach to development and use of OER should be developed (48.08%). The distribution of respondents on the basis of their suggestions is presented in Table-6.33.

**Table-6.33:** Distribution of respondents on the basis of suggestions given by them

Sr No	Suggestion	Frequency	Percentage
a)	OER policy should adopt more flexible approach	37	71.15
b)	Infrastructure should be upgraded to suit the changing requirements for OER practices	34	65.38
c)	Effective technical support should be provided	43	82.69
d)	Incentive should be given to the faculty actively involved in OER activities	35	67.31
e)	Due weightage/credit should be given to the faculty for use/development and sharing the OER	31	59.62
f)	The OER should be integrated in the educational programmes through instruction design	34	65.38
g)	OER culture should be developed and encouraged in the University	34	65.38
h)	OER communities should be developed in the University	29	55.77
i)	Collaborative approach to development and use of OER should be developed	25	48.08
j)	More training and staff development opportunities should be provided	39	75.00
k)	More funds should be allocated for development of OER	29	55.77
l)	In-house facilities for OER development should be enhanced	32	61.54
m)	Monitoring mechanism for OER activities should be developed	27	51.92
n)	Quality assurance mechanism should be strengthened	33	63.46
o)	Too much overload of other works must be undone for teachers.	1	1.92

The discussion and recommendations based on the analysis presented in the foregoing paragraphs is presented in the next Chapter.

The current study seeks to evaluate the awareness generation and capacity building initiatives undertaken by CEMCA for ODL functionaries in collaboration with Bangladesh Open University, Netaji Subhash Open University, and Odisha State Open University. In addition to administering a survey questionnaire on the participants, Focus Group Discussions (FGD) were conducted at the three Universities participating in the study, to substantiate the findings. The FGD consisted of 9–12 participants. This number was easy to manage in order to have in-depth discussion on the items provided in the FGD Schedule (Appendix-B). The duration of the discussion was one hour approximately. One of the faculty members from the host institution assisted in conducting the FGD. The discussion was audio recorded with prior permission of the participants and later that was transcribed for analysis. The findings are presented in the forthcoming paragraphs.

► 7.1 Frequency of Use of OER

The discussion revealed that the participants were interested in use of OER for different purposes. They were found using the OER at different times. While some of the participants made use of OER frequently, others used them as and when there was a need. The purpose of the use of OER ranged from update of knowledge; finding reference, and free and rare books; for professional development to preparation of course material. The responses of some of the participants are re-produced below:

We have taken around 200 A/V and in our subject social work we have already completed 50-60 A/V for first year and we are working on second year. OER would be a very good thing because we have dissertation and field work. It is good opportunity for the students they get advantage.

Most often I am using OER to update my knowledge, to get some reference, every day. I do not have space to stock the text books, reference books etc. I get many rare books on the website.

Most frequently, to get latest knowledge in my field.

I use OER at least thrice a week. The reason is sometimes for reference, or to get an idea for preparation of lecture.

I am using OER regularly daily to daily basis for updating my knowledge and preparing material for academic session.



► 7.2 Creation and Sharing of Learning Resources as OER

The participants were involved with development of learning resources for OER. These resources were uploaded by them on the institutional repository of their university. The participants reported that in addition to in-house faculty, external experts were also involved in creation of learning content for the repository. The OER content was also shared by the participants through different websites including the Facebook page and YouTube channels created for this purpose. The material could be downloaded from these websites without any restrictions. The participants usually created the material in different formats such as text, ppt, audio, video, etc. The responses given by some of the participants are presented below:

We have developed OER content after the workshop was conducted.

We also invite experts from outside to contribute in developing OERs and we do it ourselves also.

We share our material on other sites and our Facebook page. We have YouTube channel and we share the OER on YouTube also. More than 2000 students are associated on the page and we are sharing all the material with proper links through that platform so that they can visit the sites.

We have developed the A/V programmes related to our course along with ppts. We use the WhatsApp groups and Google groups to send the material links to the students.

I have taken a lot of graphic presentations, data tables and even photos for OER repository.

► 7.3 Curation of Learning Resources as OER

The participants reported during the discussion that they used the existing self-learning material for curation to the eContent format for uploading on the institutional repository of their university. The curation is the process of converting the existing content into digital format suitable to be uploaded as OER so that the user could use it at her/his convenience. In some cases the participants had created audio and video programmes based on the self-learning material already available with them. One of the participants developed a script based on the self-learning material for preparation of video programmes that would later be uploaded on YouTube. The comments received from some of the participants are presented below:

I am trying to develop an online multiple choice question bank. I am taking some of the material from my SLM.

I did a whole course in Lib Sc. I had prepared a course by using Moodle software and through that course I am just maintaining a virtual learning environment to cater to

those marginalised students who are not able to come in our university premises. They can access that course through this.

► 7.4 Use of OER for Teaching, Learning, and SLM Development

As was revealed from the discussion with them, the participants made frequent use of OER for teaching and learning. At times they used Web resources for preparation of their presentation on a certain topic. On other occasions, they provided links of the relevant material to the learners. They used Google Groups to disseminate the information about the additional reading material from the OER. The participants were conscious about the copyright and licenses of the material available on the Internet. They frequently sought the help of OER for development of SLM for their courses. The opinions of some of the participants from the FGD are presented below:

I am using OER for teaching and learning very often to prepare my lectures.

We use the OER material for teaching and for any presentation in seminar or workshop. We use to take help from Internet. If you are using it as OER, it must have an open license. You have to find all those materials which have CC license, so it could be regarded as OER. Key term is very important in finding the OER.

We are able to find the resources on the Internet and they are most relevant to my programme. Lot of material is available on the Internet. Even sometimes we use the SlideShare ppts also.

Open journals are there; you have to find out since all material is not OER. OER must have the licensing provision.

I use presentations and other material, and give links to students for OER and other material.

I use the OER to a great extent. I have written a book on journalism. So I went to the web and collected the photographs.

I have used the BBC learning method for 'news creating' for the SLM.

► 7.5 Creative Commons Open Licensing Policy

The participants were found well conversant with different provisions of the Creative Commons Open Licensing Policy. They were of the opinion that the creators of the OER content should use the Share Alike license. It would boost the tendency of sharing the content among the users of the OER. The participants liked the feature of the OER and this allowed them to repurpose and customise the content. Some other participants were of the opinion that the Share Alike-Non-Commercial license should be used for the educational material created by the institutions. Individuals



should not be allowed to make money out of the OER resources that are freely available. Some of the responses of the participants are presented below:

The people should use ShareAlike license since we can develop it again. We face wide range of learner challenges and we need to change the content for our teaching.

Changing the material with every new batch of students is possible.

It helps in proper knowledge transmission.

The license CC-BY-SA-NC should be used since it helps others to share the derivatives for non-commercial purposes.

The policy is very positive because it is flexible. You can share the material and attach a license to it.

► 7.6 OER Policy Adopted by the University

The participants were asked to comment upon the different provisions of the OER policy adopted by their university. The participants were of the opinion that the OER policy adopted by their university had been devised after deliberations in different consultative meetings. Therefore, the policy was a comprehensive document with provisions for different aspects to deal with OER. At this stage, the policy did not require any change or addition of provisions. The comments of the participants on this aspect are reproduced below:

Our policy provides lot of flexibility.

The policy is CC-BY-SA.

Nothing is required to be added to the policy.

I think CC-BY-NC-SA should be implemented in case of our own SLM. For other things, we may follow CC-BY-SA, like a report of this seminar. It is our property, we are the boss of this property. In case of question papers, reports, we may use CC-BY-SA. There can be differential licensing policy keeping in view the type of the document.

► 7.7 Reflections on Usage and Contribution to OER

The participants were asked to give their reflection on the use and contribution to OER. Some of the participants were of the opinion that sharing of material in regional languages was the primary responsibility of the teachers. They had started doing it on a small scale but it needed to be substantiated. They considered checking the authenticity of the material as important. They felt that use of quality OER material would lead to development of quality material. Some of the reflections of the participants are presented below:

We have a primary responsibility of sharing the material and to have the material in regional languages. We have started doing this but it is in a very small way, it has to be substantial.

For use and reuse, we need to check the authenticity of the material and use the same; and only then, we can develop quality material and share it.

If the material is in regional language it will have more impact on our students.

► 7.8 Influence of OER Use on Pedagogical Practices in ODL

The discussion with participants revealed that they were engrossed with the OER use not only for teaching and learning purposes, but for development of SLM as well. They were substantially contributing the content to their institutional repository. With this understanding and knowledge of OER, they were asked to express their reflection on the influence of OER use on pedagogical practices in open and distance learning systems. The participants were of the opinion that the use of OER in ODL was going to influence the pedagogical practices in a big way. Use of OER would make the learning more interesting for the students. The students were able to access the OER and other educational resources provided by the educational institutions on an anywhere anytime basis. The students would be able to download the audio and video programmes of the counselling sessions whenever they failed to attend them or for revision purposes also. The participants felt that the availability of the OER on relevant topics was a boon for the teachers who could consult these resources whenever they felt the need. The use of OER in teaching and learning had become almost indispensable both for teachers and students. The students were able to refer to the additional learning resources as per their learning style and, thus enriched their learning experience.

The trend of using OER with the students is increasing. The OER is going to help the learning process. There are lot many benefits of using OER. The students are practicing the OER and taking interest since the younger generation is taking more interest in using OER. This will give the next generation better chance to learn.

Now students will not miss; if I have an interactive session in my class, the students will not say madam, I was absent on that day, since it is already available in the repository. Seeing things doing has much more effect in their brains which last for a long time.

We should have latest knowledge and latest findings on that subject, and its contribution as OER will help the other students, scholars, teachers and institutions to learn about the latest knowledge. Latest knowledge should be incorporated in the OER.

I think if this OER process is developed in a wide manner, it has the potential of replacing the traditional education system entirely. Even these colleges may also disappear. The learners can pursue their own livelihood whatever job they are doing and also simultaneously they can pursue the studies in ODL system like 'Aklavya' -self study method.



The OER will have a dramatic influence on the teaching and learning process. It will bring all positive changes.

The influence of availability of the OER is that a student is judging the teacher in the classroom. Whenever a statement is given by a teacher, the student goes to the web and checks the correctness of this statement. This is one of the greatest influences on learning.

► 7.9 Contribution to Institutional OER Repository

As part of the FGD, the participants informed that their university was actively involved in developing a huge content-base on the institutional repository that had been created for the benefit of the communities of teachers, students and other users at large. The faculty members from different disciplines kept on sharing their work as OER on the repository. The OER policy adopted by the university mandated the teachers to create and upload the content as OER.

► 7.10 Impact of OER and Institutional Repositories on Student Learning

The impact of creation of OER repository by the universities can be seen in different ways. The participants were asked to reflect on their experiences in evaluating the impact of the OER content available on their repository, and on learning experiences of the students. The participants reported that the use of OER had influenced the students in a great way. They were able to seek instant academic content help from the Web. With the launch of the university OER repository, the audio and video programmes in a large number had been uploaded on the portal. The number of student attending the counselling sessions has a decreasing trend since all the material was available on the university portal. The participants were of the opinion that the students got monetarily benefited through use of OER. They now did not need to visit the library or purchase books. They could use this material for free through the OER. Since, these resources had been created by the well qualified and expert teachers of the University, the authenticity and reliability of the content was very high among the users. As reported by the participants, the students gave positive feedback regarding impact of use of OER on students learning since they were able to get complete learning material on the university portal at the time of enrolment itself. The students got creative ideas of using the material available on OER. The opinions of some of the participants are presented below:

I have my students all over West Bengal but I do not find some of the students in the counselling. I find them only in examinations. But they would like to be in contact with me through emails and other online support services. This is a great boon for the teachers and learners.

These resources are very much effective before examinations because the students watch A/V CDs which we give them through the university. They practice it and go for examination; thus these materials help them in learning.

The students are very much benefited from use of OER. Even for me also when I used to go to classroom I used to ask the students to go to this website through this link so that they can immediately see and open the link since most of them have smart phone.

Everything is in hand only, and it becomes more interesting. The classroom becomes more interactive. Even some students, sometimes if we say something they can refer it on the internet and cross check immediately. They have gone smart.

The student is definitely in an advantageous position as far as access is concerned; but besides that, learners have absolute access of the material for learning and if he/she is interested to enhance knowledge in some other area, can take advantages of that.

► 7.11 Benefit of the OER Initiatives Undertaken by CEMCA

The participants had undergone the capacity building workshops organised by CEMCA in collaboration with the respective open universities. The participants were asked to report whether participation in these workshops had a positive influence on their teaching and learning practices. They reported that participation in these workshops had helped them in understanding different aspects of OER and provided them working knowledge in this area. They acquired practical knowledge of the open licensing system while attending these workshops. The participants were using all these skills substantially in their teaching and learning activities. Some reactions of the participants during the discussions are presented below:

We were ignorant about the OER system. After CEMCA gave some idea, we have highlighted and learnt many things. I think this is very positive for our future. CEMCA has done 70% of the work and we are really happy with the work of CEMCA.

Previously, we only used chalk and talk teaching; now we have A/V, we are recording our lectures, practicals, because these things are being distributed to our students through our OER repository. This is very good initiative taken by CEMCA.

Instead of having 2 or 3 days' workshop I think it should be at least month workshop with grassroots working hands on practice. We should bring young generation upstairs. There should be exam and evaluation test so that you can be certified as OER professional.

Few positive words for CEMCA, CEMCA supported me to facilitate my students all over. They are actually enhancing teachers' quality also, first of all; and they are contributing their whole knowledge and whole support.



It is a great help from the CEMCA. My perception about OER has become clear now. I have learnt the copyright and licensing policy through the workshops organised by CEMCA. I have some quality enhancement to myself on OER. I have received lot of inputs from CEMCA.

► 7.12 Barriers in Use and Contribution of OER

The participants of the FGD were asked to reflect on the issues and barriers being faced by them in their day-to-day use of OER for pedagogical purposes. The participants were of the view that language content was not available in regional languages. In cases where the subjects were taught bilingually, they had to read the concepts in English and then translate them in the regional language. There was an issue in this process that hampered the learning process. The participants highlighted the issues of access to IT infrastructure and network problem in remote areas as major barriers in use and promotion of OER and thereby making all interactions between teacher and student asynchronous. There was a lack of awareness about OER among teachers and students in remote areas. Some other participants highlighted the need of skill development among teachers and students in search and use of OER. Other key persons working in the educational institutions as deans, heads of the departments, counsellors, etc., also needed to be trained to improve their perception about OER. The people belonging to marginalised sections were not able to access these resources for want of computer and Internet facility. However, availability of relevant resources and technology at the study centres might help in ensuring enhanced use of OER, thereby contributing to its promotion. The constraints highlighted by some of the participants are presented below:

English is not a mark or measurement of one's actual knowledge. It cannot be the parameter.

Change in perspective and acceptance of OER can help the teaching learning process. Here also a paradigm shift is required; we are much comfortable in print.

Non-availability of local contextualised material as the OER is a major constraint.

Let us not thinly spread resources. It is better to strengthen open universities since public access to the resources of open universities is better in comparison to the convention setup.

In the first phase the teachers have been trained, other people as the key persons, deans, head of the departments, counsellors also need to be trained.

We need more facilities to develop the OER. We need studio facilities for creating the OER.

Similar findings have been reported by the participants through their responses against survey questionnaire.

The attitude, perspective and inclination of the head of an institution plays an important role in providing direction to the academic activities of that institution (Baruch, 2013). It is the vision of the leader that is translated by different wings of the institution into practice in a planned manner. A leader with a technological bent of mind would promote use of technology in different processes of the institution. In this case, implementation of OER was a new initiative for the open universities under study. It was, therefore, thought appropriate to know about the perspective of the heads of these universities on use and promotion of OER in their institutions. Keeping this in view, the Vice-Chancellors of NSOU and OSOU were interviewed to know their perception about OER use and sharing that could reflect on sustainability of these efforts. The interviews were recorded with permission of the participants and subsequently translated for analysis purposes. The interviewees were provided a copy of the Interview Schedule (Appendix-C) prior to recording so that they could frame their well thought answers to the questions. The analysis of the responses is presented in the forthcoming paragraphs.

► 8.1 Reflection on Initiatives Taken by CEMCA for Promotion of OER

The interviewees were heads of their respective institutions. Being the educational leaders, they were instrumental in launching of OER initiatives in their institutions in collaboration with CEMCA. Their collaboration with CEMCA reflected their positive and progressive attitude to move with time. It was high time for developing OER capabilities in their institutions in order to reap benefits from the OER movement. They were asked to give their reflections on the efforts extended by CEMCA for promotion of OER. The interviewees appreciated the role performed by CEMCA in supporting their institutions through different activities including conduct of OER capacity enhancement workshops, consultative meetings, OER policy development, etc. They cherished their long institutional association with CEMCA. The views expressed by them are presented below:

I have a feeling that our teachers by attending these workshops have been sufficiently oriented to create OER resources and to have access to the existing OER. They have been completely made aware about the different licensing systems under which OERs are available and how to repurpose and contextualise the OER for the benefit of the learners.



COL in general and CEMCA in particular as a body under it, were involved in this noble endeavour and this is particularly important in countries like us where most of the people are having huge interest in coming to the domain of higher education, and in such a big country the capacity building and other initiatives which are being taken by CEMCA in the field of OER is a very welcome gesture.

► 8.2 Promotion, Development and Use of OER

The participants were asked to share their opinion about promotion, development and use of OER in general and in their University in particular. The interviewees felt that the use of OER is going to benefit the users in a big way. The teachers and other academics in the educational institutions will be able to use the OER not only for enriching the pedagogical processes but for creating new resources as well. They will be able to reach a larger number of users with quality content. The students would be the prominent users of these educational resources. They will be greatly benefitted with these resources since they will be able to view the lecturers and other quality content produced by the renowned teachers in the field. The educational resources created by the university will help in providing quality education to the aspirants at remote locations as well. They felt that the OER should be promoted in the larger interest and the content should be released under open licensing system so that the users could access these rich educational resources for free without any restrictions. Some of the views expressed by the interviewees are presented below:

I have a feeling that if all educational resources are available through the open source, the students residing in different parts of the country even abroad can have access to those materials; so the learners will be greatly benefitted by having access to quality learning material. Similarly the teachers and course writers, course editors if they have access to the open source material, then they need not have to waste their time in generating material, rather the standard open source material can be further improved upon and the material can be translated, can be edited, can be revised, can be contextualised, can be remixed and many things can be done for further qualitative improvement of the OER material.

Promotion, development and use of OER is a very broad aspect especially in our country which is having huge number of universities nearly 30-40 thousand colleges under its ambit and huge number of students enrolled the domain of higher education was lagging behind. We are having our target of national GER which is around 30-31 by 2020. To reach the target, we are highly dependent on the enrolment of students in the open education domain. These students as well as the students who are already enrolled in the conventional education system need the help of the huge repository of open educational resources available under open licensing policy in our country. I am sure rather I support strongly and have the strongest opinion for promotion of OER policy in our country in days to come. Why not from today itself?

► 8.3 Enriching Teaching and Learning in ODL with OER

The use of OER in ODL helps the teachers in enriching teaching and learning processes. The participants were asked to give their opinion on whether use of OER can enrich teaching and learning in the ODL system. The participants were of the opinion that the ODL system follows a multi-media approach to instruction. The self-learning material is provided to the students and this is supported by audio and video programmes relevant to the curriculum. The student support services including the academic guidance help the ODL institutions in enhancing the learning experience of the students. The opinions expressed by the participants are presented below:

Definitely, open and distance learning system has the mandate to develop not only printed material but also audio, video contents, has to supplement the learning materials and then with the advancement in technology, animation multimedia and many other things have been incorporated to the content part of the open and distance learning system. So now that OER material are available and OER is an open source material under an open licensing system, I have a feeling that the open and distance learning system will be greatly benefited, for a university having the mandate to provide quality education at very affordable cost. I think the OER material if these are available to the university teachers and students, then the cost of reproducing the material will be drastically reduced.

The materials which are available under the open licensing system are definitely of higher quality. So the quality and cost parts will be taken care of and when we adopt the material, we will also try to translate those material to the local regional language and some of the open source material which are slightly not been revised can be revised by the teachers and the course writers.

Once the materials are contextualised and translated, and then some recent data and figures are added, this will become updated material for everybody to use not only in this university but other universities as well.

The OER and ODL system, these two things are just complimentary to each other. They are inseparable since in ODL system we are dependent on three things - SLM, PCPs, and thirdly we are dependent on ICT support system. Now ICT support system is the backbone of huge number of OER repositories. The students should have access to the OER repositories because most of them are located in remote places. So only the OER system can give access to this type of education with excellence, equity and justice.

► 8.4 Open Universities as Promoter of OER for Better Teaching and Learning

The role of open and distance learning system in democratising higher education is well recognised now. The open universities contribute substantially to the gross



enrolment ratio in higher education. These institutions are making their all out efforts to augment educational opportunities for the marginalised sections of the society at the global level. Since the self-learning materials produced by these institutions are designed and written methodically as per learning styles of the learners and in didactic format where teacher is embedded in the content, it is most suited for self-study. Thus, material produced by the open universities can be easily converted as OER and as such, can prove to be one of the best OER. The participants reported that their universities have already created their institutional repository and adopted an enabling OER policy that motivates the faculty to develop the OER and share them through the repository. The teachers are in the process of developing more and more educational resources in text, audio, video, and quiz formats, and uploading on the university repository. A few of the comments of the participants are presented below:

The highest policy making body of our university has already approved the OER policy and we have adopted CC-BY-SA license where anybody can use our material, anybody can contextualise our material, can translate, can remix, even if somebody desires to use the material for any kind of commercial purposes, there are no restrictions from the university side.

Our teachers have attended so many training programmes conducted by CEMCA for creating OER resources and you will be happy to know that we have an OER repository which is available on the Internet for anybody to access. We have designed mobile app also and through the smart phone you can download the mobile app and can have access to all the contents, all the text material. So university is making all efforts to promote OERs which are presently designed and developed by our own course writers.

Definitely, we can act as promoter of OER for implementation of better teaching and learning policies and facilities in our state. There are two languages which are being actually preferred by the students of our state. Few of them are capable of going through the teaching learning system in a university. Our main initiative would be to prepare more OER material in vernacular language for the betterment of our students.

► 8.5 Changes Expected After Adoption of OER Policy

CEMCA has been instrumental in organising the consultative meetings of the open universities for developing the OER policy. As reported by the participants, their universities have adopted OER policy at the institutional level. However, they were of the opinion that if the apex bodies of higher education in the country adopt a national policy on OER, it will guide the educational institutions across the country to adopt OER policy at institutional level, and implement and promote OER in a big way. The OER repositories created by these universities will provide their students access to quality material sitting at their home. These resources will be in addition

to what is being provided by the universities as self-learning material package. The opinions of the participants are presented below:

Right now, though we have adopted the OER policy but we want that there has to be a national OER policy. So we want that national policy on OER be adopted so that every university will follow standard guidelines and standard operating procedure (SOP) for both design and development of OER.

I have a feeling that after adoption of the OER policy, our teachers have really become aware about the availability of OER on the web, and they are also conscious that some of the material which they have designed and developed are also been viewed and examined by the international community so far as quality part is concerned.

I have a feeling that once the material is accessible to all, the quality of the material that has been developed can be subjected to scrutiny by experts in the field not only in this country but outside the country. The greatest benefit of adoption of OER policy is that the students will get quality resources and mostly they will get those resources at very affordable cost.

We feel that knowledge should be free so anybody who is not a student of this university, not a learner of this university, if they want to have access to knowledge, knowledge is free for them, so we are greatly benefited by the OER policy adopted by us.

The changes which I visualise are enormous. The students of ODL system are mostly involved in their house hold activities, many of them are involved in agriculture, the girls mainly do not want to go outside their homes especially the minority communities. There are some restrictions. So they should be able to have access to this type of thing sitting in their home. So they are to depend on the OERs where they can get access to quality materials other than the SLMs and they can have access to the downloadable repository of audio visual things also.

The responses given by the participants during the interview revealed that the adoption of the OER Policy by their institutions will go a long way in promoting OER among users in remote areas. Their universities will be able to contribute to OER by providing content in vernacular languages. The availability of the OER in regional languages is going to enhance the educational opportunities for the aspirants on the margins. Thus, the contribution made by these educational institutions in the promotion of OER will be immense and unparalleled.

McKerlich, Ives and McGreal (2013) emphasised that *“using OER is an indicator of adoption, but creating OER and adding back to the community are key to broader adoption and sustainability”*. The current study has tried to find answers to the questions hidden in the above statement. The quantitative and qualitative data for the study was collected using four different tools: Questionnaire, Focus Group Discussion (FGD) Schedule, Interview Schedule, and eContent Repository Data Sheet. The data collected through these instruments has been analysed in separate Chapters. The discussion on the findings of the study is presented in the forthcoming paragraphs.

► 9.1 Profile of the Participants

In the current study, the respondents were part of the groups who attended the capacity building workshops organised by CEMCA. Their participation itself shows that they were inclined towards learning about the OER. An analysis of the profile of the respondents revealed that 54% of the respondents were between the age of 31 to 40 Years. This is probably the productive age when people want to prove their worth and take new initiatives. Similar age group of participants was reported by Chen and Panda (2013) who found that 72% participants were in the age group of 26–45 years. In the study reported by Phalachandra and Abeywardena (2016) also, majority of respondents (67%) fell in the age group of 30–39. It was worth noting in the current study that 4% participants belonged to each of the ‘61–65 Years’ and ‘more than 65 Years’ age groups. It could be because of the fact that OSOU is a new University and has currently employed academic consultants in place of the teaching faculty. Engagement of academic consultants is a normal practice in other institutions also and in the Indian context, they can be appointed up to the age of 70 years.

► 9.2 OER Policy Adoption and Implementation

All the three institutions such as BOU, NSOU and OSOU have adopted an OER policy. An analysis of the OER policy adopted by these institutions revealed that the policy paves the way for teachers to share their content through the OER repository launched by these universities. The policy also encourages the teachers to make optimal use of the educational resources available freely as OER. The study found that the institutions attach a great value to use of OER for teaching and learning. The

participants reported that the OER Policy of their institution encouraged them to use OER wherever possible. They found the culture of their institution to be favourable for use and sharing of the OER. They claimed the overall impact of adoption of OER Policy in their institution to be positive. A similar opinion was expressed by the participants during the FGD. The participants felt that their OER policy provided lot of flexibility to the teachers. The policy was so self-sustaining that nothing was required to be added at that point of time. Karunanayaka (2012) also report in his study that the teachers perceived the habit of using and sharing with positive values. However, Rolfe (2012) found that the teachers who were older in age had a resistance in sharing their content for free use; though, the younger ones had a positive attitude towards such sharing.

► 9.3 Perception of Faculty Towards OER

Positive influence of OER on teachers and students has been reported by many researchers (Weller, Arcos, Farrow, Pitt & McAndrew, 2015; Mishra, 2017). They believed that it was the duty of teachers to share the content developed by them for free. Kagima and Hausafus (2001) reported that capabilities in use of technology exert a positive influence on the attitude of teachers towards that technology. Venkaiah (2008) found that teachers (81.9%) felt that use of OER will bring cost of education down. Commenting on the awareness of teachers about OER, Chen and Panda (2013) reported that though generally they were found aware of the concept of OER, they were not able to identify it and felt that all web resources were OER. Perryman and Seal (2016) reported that use of OER has helped the Indian educators in changing their attitude towards "*openness and resource sharing*". In another study, majority of teachers (81.91%) felt that institutions can improve their image by adopting OER (Venkaiah, 2008). On a similar note, the participants in the current study firmly believed that sharing OER enhances their personal and organisational reputation. They agreed that it gave them pleasure if somebody adopts/adapts their educational resources. During the FGD, the participants reported that the teachers have the primary responsibility of sharing the material and having it in the regional language would have more impact on their students. OER helped them to disseminate their ideas. They felt that institutions should share educational resources for free with teachers, students and other institutions since OER can fulfill the pedagogical requirements in teaching to a great extent. They believed that OER not only saves their time, it enables the faculty to experiment with different teaching methods. The participants shared similar feelings during the FGD as well. They considered OER as resource rich for updating their knowledge and also for preparing their lecturers and presentations for the class. The heads of institutions in their interview opined that use of OER in ODL helps the teachers in enriching teaching and learning processes. They felt that the ODL system will be immensely benefitted with the presence of OER. Rolfe (2012) also reported that teachers perceived that sharing of their content will add to their reputation as well as to that of their institution. Thus, it can be observed that there is a positive wave going on in the institutions in favour of OER.



► 9.4 Impact of OER Training Workshops

In the current study the respondents reported positively about the impact of the orientation workshops and capacity building workshops organised by CEMCA pertaining to OER licensing policies; though, they had a varied degree of clarity consequent to attending these workshops. The respondents felt that use of the OER helped the learners in improving their performance and its use leads to equitable access to educational opportunities for students. They were of the opinion that the OER helped the students to search for the learning resources as per their learning style and, therefore, attach great value to use of OER. Since the relevant OER is already suggested by the faculty, students save time on searching for them. The teachers felt that OER enables the students to spend lesser money on reference books and, therefore, are cost effective. They were of the opinion that OER helps the institutions in following an inclusive approach since the former can provide additional content support to marginalised learners. The respondents affirmed that the students not only use the content available on the University Repository but also use different OER Repositories for enriching their learning. The participants of the FGD reported that they were ignorant about the OER and it was only after they had attended the workshops organised by CEMCA that they learnt many things about OER. They claimed to have used all the skills substantially in their teaching and learning. During their personal interviews, the heads of institutions also appreciated the efforts made by CEMCA in promoting OER through OER capacity development workshops for the faculty. However, in order to bring the small chunk of teachers who are slow learners in these institutions, more capacity building programmes should be organised.

► 9.5 Awareness of Faculty About OER Licensing Policy

The awareness of OER licensing provisions goes a long way in helping the faculty to decide for the appropriate license for their work. In a study by Hussain, Chandio, Sindher, and Hussain (2013), it was found that 85.7% teachers believed that the OER were free and could be used with due accreditation. Mishra (2017) in his study of perception of teachers about OER claims that the OER can be utilised to save on time in developing the educational resources. Chae and Jenkins (2015) also emphasised the advantages of OER use as: saving on cost for students; easily customisable with a given pedagogical situation; and promoting collaboration. During the FGD sessions organised for the current study, participants were found to be well conversant with different provisions of the Creative Commons open licensing policy. They were of the opinion that the creators of the educational resources should share them under the ShareAlike license. However, some others emphasised that the content should be allowed to be used for non-commercial purposes only, since it will help proper transmission of knowledge. During their interview the heads of institutions also expressed that their university has adopted the OER policy that would help the university in promoting OER. Their faculty members are now aware

of different provisions of the OER licensing policy and they can confidently decide on the license to be attached to their content. It is good that the teachers are aware of the licensing policy that facilitates them to share their content fearlessly.

As pointed out by Clements and Pawlowski (2012), making teachers aware of the copyright and licensing policy is essential in order to enable them to use the educational resources with suitable attribution to the original creator. As advocated by Clements and Pawlowski (2012), awareness of OER and open licensing policy leads to enhanced use and contribution to OER by teachers. Weller, Arcos, Farrow, Pitt and McAndrew, (2015) found that majority of the teachers were conversant with the open licensing policy but only a few shared the content created by them. Nikoi and Armellini (2012) reported that the teachers and students were concerned with the licensing mechanism attached to the OER. Panda and Santosh (2017) also found that only half of the teachers were well aware of the open licensing mechanism for open educational resources and issues pertaining to licensing attributes were complex in nature especially when the content needed re-mixing and contextualisation. However, Phalachandra and Abeywardena (2016) in their study reported the general understanding of the open licensing mechanism as low among the respondents. This in turn discouraged them from sharing their content freely. On the contrary, Mtebe and Raisamo (2014b) and Harishankar (2013) also pointed out through their studies that the teachers were not comfortable with the understanding of the open licensing policy that restricted them from using OER freely.

The respondents currently were confident that the OER policy of their University acknowledged the OER contribution made by the faculty. They themselves also valued OER for use in the teaching and learning process. They were confident that the knowledge of Creative Commons's OER Licensing Policy helped them in judiciously using the OER created by others. They also felt that the CC OER Licensing Policy helped the users in creating and contributing the material without losing their intellectual property rights. The respondents were not afraid of losing their copyright on their intellectual property by sharing them. This showed that the respondents were aware of the open licensing policy of Creative Commons and its different provisions.

► 9.6 Motivation Mechanism for OER Functionaries

Use of OER leads to new innovative pedagogical practices resulting in cost-effectiveness in providing quality educational resources to the students and teachers (Daniel, Kanwar, & Uvalic-Trumbic, 2009). In order to give momentum to implementation of an institutional policy it is necessary that teachers are motivated extrinsically or intrinsically. As part of extrinsic motivation for teachers, the institution can take some motivational measures so that teachers come forward to promote the use and contribution to OER. Baraniuk (2008) propagated that the people who contribute to the OER development in any way should be appropriately credited and their contribution should be recognised in their academic career. Mishra and Singh (2017) reported that appreciation and credit for better professional development motivates



the teachers to promote use of OER in their teaching. Nikoi and Armellini (2012), through their study revealed that “*reward and recognition, intellectual property rights and support for the staff*” are key elements for OER promotion. Nikoi and Armellini (2012) have highlighted the need of a reward policy for popularising the use and sharing of OER in the institutional context. They further attached high value to capacity building of faculty in OER and management support to boost OER activities in the institution. The heads of institutions, during their interview, reported that the OER repositories created by their teachers will provide their students access to quality material sitting at their home. This very fact motivates the teachers to create and share the educational resources with their students even though institutions can take other innovative measures to motivate the teachers for promoting use of OER in the institutions.

The analysis of the responses for the current study revealed that as many as 46.15% respondents affirmed that their university gives preference to the OER users in faculty development schemes. Other 44.23% respondents mentioned that the faculty involved in OER activities are given an appreciation letter that motivates them further to do better for promotion of OER. Quite a good number of respondents (32.69%) reported that the faculty involved with OER are given weightage in Academic Performance Indicator (API) scores and this helped them in seeking next upward movement in their career. During the FGD sessions the participants expressed that the use of OER is going to influence the pedagogical process in ODL system in a big way and they would not like to lag behind in that movement. They felt that use of OER in teaching and learning had become almost indispensable both for teachers as well as students. In a study, Phalachandra and Abeywardena (2016) reported that the teachers did not consider lack of recognition or award for contribution towards OER as the major barriers. However, the positive institutional environment and attitude of the management have been considered as encouraging factors for OER promotion by Pegler (2012). Venkaiah (2008) reported that 82.86% teachers felt that the OER fetched them wider recognition. CERI/OECD (2007) found the teachers sharing the content as part of their self-satisfaction and pleasure. The teachers who shared their content as OER achieved a great sense of accomplishment as reported by Mishra and Singh (2017). It could be because of the fact that the participants were intrinsically motivated. Nikoi and Armellini (2012) emphasised that the OER use had strong implications for faculty and institutional reputation and recognition in the academic world.

► 9.7 Use of OER for Teaching and Learning

Dutta (2016) considered it a challenge to make people aware about the availability of specific OER for use by them for free and this could contribute to enhancement of learning opportunities. Since the participants of the current study had already attended a series of workshops, they were aware of availability of the OER. The study revealed that majority of the respondents had a positive experience in using the OER for teaching purposes. They felt that use of OER is inbuilt in the instructional design of the programmes in their University. The respondents used presentation/

demonstration files, image files, and text files from the OER. They were able to find OER on the web as per their requirements and tried to engage the students with the help of online activities like assignments, quizzes, etc. The current study has found that the respondents were found to be using the OER for pedagogical purposes in a big way. The respondents used the OER in teaching for enrichment of the learning experience and explaining a topic or concept to the learners. At times the OER was used as additional reading material and also provided a list of additional reading resources to the students. The respondents were found using the OER to substantiate the argument and provide self evaluation exercise. The participants revealed during the FGD session that they made frequent use of OER for teaching and learning. One of the participants disclosed that he used the BBC learning method for 'news creating' for SLM. The heads of institutions opined that availability of the OER in regional languages was going to enhance the educational opportunities for the aspirants on the margins. These resources can be used by other teachers for their purpose as well. Once the teachers become used to accessing OER, their task of preparing lecturers and presentations becomes very easy.

The use of OER for teaching purposes has been affirmed by Venkaiah (2008), Petrides, Jimes, Middleton-Detzner, and Howell (2010), and Phalachandra and Abeywardena (2016). They reported that the respondents used OER for supplementing the lessons including other purposes. Chen and Panda (2013) reported that the teachers used OER to teach key points, elaborate difficult points, cite an example, and provide '*task-driven*' assignments to the students. They wanted to use the OER containing eBooks, open courses, photos, pictures and videos as the first choice. However, ease of download was the most important factor as reported by Phalachandra and Abeywardena (2016). Chen and Panda (2013) also found that teachers were using OER for teaching after adapting them. However, in the current study, the teachers used the OER for planning their courses as also for self professional development.

The development of self-learning material is another important area that has potential use of OER. Perryman and Seal (2016) found that the Indian educators were not only using OER for their professional development but also for pedagogical purposes in a routine to prepare for the teaching and presentation lessons in a big way. They were found to be using wide range of teaching and learning methods with the help of OER in addition to using the OER to compare the quality of their own work. Mishra and Singh (2017) reported that the teachers used OER to deliver their courses to the students. The respondents of the current study enjoyed using the OER for SLM development; rather they preferred to use OER for SLM development. They favoured use of image files, text files, graphics and video files from the OER. The participants were asked about the purpose of use of OER in SLM. The analysis of the responses revealed that majority of the respondents invariably used OER in SLM development to enrich the learning experience of the learners, explain the topic/content to the learners, and provide additional learning material. The respondents were found using OER to provide a list of additional reading resources to the learners, substantiate the argument, and provide self-evaluation exercises also. Petrides, Jimes, Middleton-Detzner, and Howell (2010) had similar findings and reported that



teachers used OERs for preparing lessons and sharing the content with their colleagues and also mixed the OER content with their own content for educational purposes.

► 9.8 Experience in Using the OER

Study by Weller, Arcos, Farrow, Pitt and McAndrew, (2015) found that use of OER made the teachers use wide range of innovative pedagogical methods, and thus, broadened the horizon of the curriculum. Hilton and Wiley (2010) were of the opinion that the teachers had a moral responsibility to share their knowledge openly and freely. In the current study, the respondents were asked to share their experiences about using the OER for teaching purposes. The respondents reported a positive experience in using the OER for teaching purpose. Similar trend of positivity experience was visible when the data was analysed University-wise and respondents had great experience in using the OER for teaching purposes. However, the respondents were of the opinion that enough resources are not available in vernacular languages. The content needed to be contextualised and converted into local languages in order to provide it to the students who study in regional languages. Selinger (2004) also held that the content needs to be contextualised and made culturally relevant for teaching in the local context. Though, it is complicated task to develop it and expect others to use it rather than to re-use the available OER as pointed out by Hatakka, Avdic, and Gronlund (2009). The common repositories used by the teachers were OER Commons, Wiki Commons and COL-DOR in addition to their own university repositories. Phalachandra and Abeywardena (2016) found that the teachers were using search engines more to find the appropriate OER content than the OER repositories themselves. The participants during the FGD session opined that use of quality OER resources will lead to development of quality material. Positive experience of teachers in use of OER becomes contagious and motivates them more and more to get involved with use and creation of OER.

► 9.9 Sharing of OER by Faculty

Use of OER is a basic function of the OER functionaries. The existing resources can be used in their original form in addition to re-purposing, mixing or contextualising them. However, using OER is altogether different. It is the moral responsibility of teachers to contribute to the enhancement of the domain of knowledge by sharing their resources. McKerlich, Ives and McGreal (2013) reported that number of participants who used OER, outweighed the number of participants who contributed to the repository of OER. Hart, Chetty, and Archer, (2015) also had similar findings. In another study, Phalachandra and Abeywardena (2016) reported that majority of the respondents had not shared their teaching content openly as OER. On the contrary, Mishra (2017) found the teachers inclined more towards sharing the OER than using the same. Chen and Panda (2013) had similar findings who reported that while more than half of the teachers frequently contributed to the OER, only one-third of the respondents used the OER often.

The current study sought to know the perception about sharing of resources created by them. It was revealed the respondents not only preferred to share the content developed by them as OER but also enjoyed sharing the content. They found the reaction of their colleagues over their sharing the resources as positive. The respondents usually shared presentation/demonstration files as OER followed by text files and video files. The other types of content shared by them as OER was graphics, audio files, images files, and newly created e-content. Panda and Santosh (2017) found that the teachers had created textual material, videos, images and tutorials as OER. McKerlich, Ives and McGreal (2013) reported that a large number of teachers were creating tutorials as OER followed by quiz, audio, and video. The participants reported during the FGD session that in addition to in-house faculty, external experts were also involved in creation of learning content for the repository. The content was shared by the participants through different websites including Facebook and YouTube, etc.

The analysis of the data gathered through the eContent Repository Datasheet revealed that the faculty was awfully busy in developing the content in the local language; and content for good number of courses in different disciplines and at different levels had already been uploaded on the university repositories in text, audio, and video formats. The use of these resources by the users was quite encouraging. The repositories provided easy access to the material with the help of search filters that provided facility for programme-wise, course-wise and topic-wise search of the material. The users could submit their feedback pertaining to ease of access and availability of content including technical issues, if any, through the repository portal.

► 9.10 Improvement of Student Performance on Use of OER

The students have been found using OER for various purposes. The studies have reported that the use of OER has positively influenced the performance of the students. Weller, Arcos, Farrow, Pitt and McAndrew, (2015) reported that “*OER has a positive impact on student’s attitudes and perceptions of learning, even if comparative data of score improvement is difficult to obtain*”. It also is helpful in enhancing “*enthusiasm, engagement and confidence*” of the students. Kim, Lee, Lee, and Shon (2015) found that many of the students were positive in using the OER and took more interest in finding suitable content on the Internet. Weller, Arcos, Farrow, Pitt and McAndrew, (2015) claimed that the OER improved learner engagement in learning. It might not lead to performance improvement but helped in enhancing student satisfaction. Cooney (2017) reported that the students found it easy to search the desired material on the internet since everything was available at one place. However, a majority of students did not know as to where to search for the desired content. Regalado and Smale (2014) reported that in order to enable the students to access the OER, it is pre-requisite that they had access to the computer or other smart devices on and off the campus. During the FGD, for the current study the participants reported that the



use of OER had influenced the students in a great way. They were able to seek instant academic content help from the web. They now did not need to visit the library or purchase books. They could use this material for free through the OER.

The studies by Cooney (2016); Phalachandra and Abeywardena (2016); Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015); and Petrides, Jimes, Middleton-Detzner, Walling, and Weiss (2011) had reported that in majority of the cases the students attributed use of OER to cost effectiveness. Farrow, Pitt, de los Arcos, Perryman, Weller, and McAndrew (2015) found that use of OER impacted the learners in the form of increase in learner participation, interest in subject, satisfaction, and engagement, among others. It was found from the analysis of the responses received from the participants pertaining to impact of OER on student performance that majority of the respondents emphatically accepted that use of OER had helped the students in improving their performance. Study by Venkaiah (2008) had similar findings while reporting that teachers took OER as “a great help to the learners” and learners were using the OER. The heads of the institutions during their interview reported that their institutions were committed to act as the promoter of OER by sharing the quality content in local languages that would help the students in improving their performance.

► 9.11 Use of OER Platforms by Students

The Internet provides access to a large number of educational resources. The students could identify by hit and trial method as to which of the platforms suited their requirement of content. The respondents in the current study were asked to report as to which of the online platforms the learners used more frequently to augment their learning. The platforms the students were found using invariably to enrich their learning experience, were reported as: Coursera, Edx, e-PG Paathshalla, University repository, Google Classroom, OER Commons, Scribd, blogs on the relevant subject from Google, Creative Commons, Dspace, e-Gyanagar (OSOU), Swayam, Khan Academy, university LMS, MERLOT, NROER, Schoology, UNESCO portal, YouTube for Video lectures, Wikipedia, WikiEducator, and other relevant online platforms. The students were found using Google search engine in a big way to find their desired content on the Internet. Phalachandra and Abeywardena (2016) also found the participants using Google extensively for making searches for the relevant content on the Internet. As reported by the participants during the FGD session, students were found using university repository in a big way. They gave positive feedback regarding impact of use of OER on students learning since they were able to get complete learning material on the university portal at the time of enrolment itself.

► 9.12 Purpose of Use of OER by Students

The current study sought to find out the purpose of use of OER by the students. It was revealed that the students were using OER for different purposes: to enhance

the knowledge and skills to attempt any question; tutorial purposes; to download M.C.Q; MOOCs; for online lectures if they missed classes; getting textbooks and video lectures; learning theory chapters; preparing project; seeking reference material; getting advanced and updated knowledge of any subject; getting access to diagrams and graphics; verifying information received by them from other sources; writing articles and preparing their lessons/notes; writing assignments; preparing project papers; listening to audio; downloading images; creating PPT for presentation; obtaining study materials and reference study materials; developing their interest in a topic, enhancing their knowledge; reading books and watching videos; finding reference texts, examples and easier explanations; quantitative and qualitative exploration, and preparing assignments as well as final examinations. The discussion with the participants during FGD session revealed that the students got monitory benefit through use of OER. They now did not need to visit the library or purchase books. They could use this material for free through the OER.

► 9.13 Issues and Barriers

The educational institutions are at different phases of implanting OER. The OER functionaries in these institutions face a wide range of constraints. Ngimwa and Wilson (2012) reported that the issue of technology was considered as a barrier by the teachers in development of OER. Lack of knowledge of copyright and open licensing system had still been reported by many researchers as the challenge in case of OER promotion CSF (2013); Hoosen (2012); Percy and Van Belle (2012). They point out that lack of knowledge among teachers and other content creators about the different open licensing options was one of the constraints in promotion of use and sharing of OER. They found searching and choosing the appropriate OER, copyright problems, and adaptation and language difficulty as some of the constraints being faced by the OER functionaries. The lack of recognition of the contribution or a reward mechanism was taken as a constraint by the participants (Ngimwa & Wilson, 2012). The studies by Chiles (2010) and Hodgkinson-Williams (2010) also highlighted similar issues through their studies. During the FGD session for the current study, the participants revealed that issues of access to IT infrastructure and network problem in remote areas were the major barriers in use and promotion of OER could make all interactions between the teacher and student asynchronous. The teachers also wanted more facilities to develop OER especially studio facilities to create audio and video content.

The analysis of the data for the current study revealed that lack of understanding of intellectual property licenses, copyrights and Creative Commons licenses was ranked highest by the participants in the list of issues and constraints. Other issued ranked by the respondents were: lack of ICT skills required to create OER; lack of knowledge for using OER in teaching and learning process; lack of recognition and rewards system for developing OER; and lack of financial resources with the institution to invest in OER. In addition to the above, other issues identified by the respondents were: lack of technological support to resolve day to day issues; poor



technical infrastructure, lack of training and capacity building opportunities in OER; sharing of expertise for the re-learning of OER practices with other faculty members, and inability to find existing OER on topics of interest. The issues pertaining to lack of understanding of Intellectual Property licenses and Copyrights; lack of ICT skills required to create OER and Creative Commons licenses; and lack of knowledge for using OER in teaching and learning process were ranked high by the respondents from BOU and OSOU, in comparison to the respondents from NSOU. The issue of lack of recognition and rewards system for developing OER had been ranked high by respondents from OSOU.

The issues raised by the respondents in the current study are not new ones. These have been highlighted by different researchers from time to time. Perryman and Seal (2016) found that *“slow internet connection, limited bandwidth, unreliable internet connection, restricted access to ICT equipment and lower levels of digital literacy”* were considered as a barrier by the teachers in their use of OER. Cooney (2017), Phalachandra and Abeywardena (2016) had highlighted similar issues in their studies. The major impediment affecting promotion of OER identified by Mishra and Singh (2017) were: lack of awareness of open licensing mechanism; current workload on teachers; lack of appreciation and recognition for promoting OER; lack of 24x7 technical support; financial constraints with the educational institutions to spend on OER. Mtebe and Raisamo (2014b) also raised the issue of lack of adequate IT infrastructure available to teachers through their study. Similar constraints had been pointed out by Dhanarajan and Porter (2013), and Mtebe and Raisamo (2014a).

► 9.14 Suggestions

The section on issues and barriers has highlighted different institutional and personal barriers faced by the teachers in use, and contribution and promotion of OER in their institutions. The participants in the current study were asked to suggest measures for addressing the issues and barriers faced by them in their day-to-day OER operations since they could give constructive suggestions for improvement of the situation being well conversant with those issues and barriers. The respondents suggested that effective technical support should be provided to the faculty working for the OER that was followed by: more training and staff development opportunities should be provided; OER policy should adopt more flexible approach; incentive should be given to the faculty actively involved in OER activities; infrastructure should be upgraded to suit the changing requirements for OER practices; OER should be integrated in the educational programmes through instruction design; and OER culture should be developed and encouraged in the University. Some of the respondents emphasised that the quality assurance mechanism should be strengthened; and in-house facilities for OER development should be enhanced. Perryman (2013); Panda and Santosh (2017); Ngimwa and Wilson (2012); Perryman and Seal (2016); Mishra and Singh (2017); and Venkaiah (2008) had suggested developing high order computing skills among teachers in addition to conducting proper training in OER for them. Need for monitory support for the OER contributing faculty on behalf of the educational

institution had been highlighted by Glennie, Harley, Butcher, and van Wyk (2012). The teachers should know how to make selection, revision, and use of OER easier for development of OER culture in the institution. (Chen & Panda, 2013). McGreal (2012) had highlighted the importance of integrating OER into their syllabi and courses so that it could become part of their routine to use OER.

► 9.15 Research Questions

The design and methodology of the current study focused to seek answers to the specific research questions framed at the time of commencement of the study. The researcher has tried to answer these questions in the following manner:

Question No. 1: What is the perception of teachers about OER use and sharing?

The study revealed that the participants firmly believed that sharing of OER enhances their personal and organisational reputation. Their perception about the OER was quite clear. It gave them pleasure if somebody adopted/adapted their educational resources. They were of the opinion that OER helped them to disseminate their ideas. They felt that institutions should share educational resources for free with teachers, students and other institutions since the OER can fulfill the pedagogical requirements in teaching to a great extent. They believed that OER not only saved their time, its use enabled them to experiment with different teaching methods.

Question No. 2: What is the knowledge level of faculty pertaining to open licensing system?

The study found that the respondents had good knowledge of the OER policy adopted by their university. They had good knowledge of the open licensing system adopted by their university. They were confident that the knowledge of Creative Commons (CC) OER Licensing Policy helped them in judiciously using the OER created by others. They also felt that the CC OER Licensing Policy helped the users in creating and contributing the material without losing their intellectual property rights. The respondents were not afraid of losing their copyright on their intellectual property by sharing them. This showed that the respondents were aware of the open licensing policy of Creative Commons and its different provisions.

Question No. 3: What is the extent of use and sharing of OER by the teachers?

The analysis of the data revealed good results. It was found that the respondents had a positive experience in using the OER for teaching purposes. They felt that use of OER is inbuilt in the instructional design of the programmes in their University. The respondents used presentation/demonstration files, image files, and text files from the OER. They were able to find OER on the Web as per their requirements and tried to engage the students with the help of online activities like assignments, quizzes, etc. The respondents enjoyed using the OER for SLM development also; rather they preferred to use OER for SLM development. They not only preferred to share the



content developed by them as OER but also enjoyed sharing it. They usually shared presentation/demonstration files as OER followed by text files and video files. The other types of content shared by them as OER were graphics, audio files, images files, and newly created content.

Question No. 4: What are the issues and challenges in promotion of OER?

The participants in their responses reported different issues and challenges being faced by them while implementing OER. The prominent challenges flagged by them were: lack of understanding of intellectual property licenses, copyrights and Creative Commons licenses; lack of ICT skills required to create OER; lack of knowledge for using OER in teaching and learning process; lack of recognition and rewards system for developing OER; and lack of financial resources with the institution to invest in OER. In addition, they also highlighted other issues such as: lack of technological support to resolve day-to-day issues; poor technical infrastructure; lack of training and capacity building opportunities in OER; sharing of expertise for OER Practices with other faculty members; and inability to find existing OER on topics of interest especially in vernacular languages.

Question No. 5: What is the overall effect of capacity building interventions initiated by CEMCA?

The respondents affirmed that participation in the capacity building workshops organised by CEMCA had a positive impact on their perception towards OER. The participation in these workshops made the respondents aware of the applications of OER and this influenced their perception about OER. They acquired knowledge of open licensing policy that they could use for their own work. The participants learnt how to find the relevant content and use it in its original form or after repurposing or mixing. The participation in workshops enhanced their confidence in sharing the content as OER without losing the copyright. Creation of institutional OER repository and uploading on it the eContent for a large number of courses in different formats is the testimony to their expertise in OER.

The above findings are important from the viewpoint of evaluation of the capacity enhancement and other initiatives initiated by CEMCA in collaboration with the participating universities. The report presents the status of preparedness of the faculty for implementation of OER, status of OER policy adoption, extent of utilisation of OER by the teachers for teaching and learning, and also for development of self-learning material, in addition to highlighting the issues and challenges faced by the OER functionaries in the process.

► 9.16 Recommendations

The objective of the current research was to make an evaluative study of the initiatives of CEMCA in promotion of OER at institutional level. The study has found that the participating institutions and their teachers have been immensely benefited from the

capacity building and professional development workshops conducted by CEMCA. As reported by Pawslowski (2012) “*creating OER leads to higher emotional engagement than simply using OER*”. The ratio of creation and use of OER in an educational institution is crucial for ascertaining status of OER adoption in that institution (McKerlich, Ives & McGreal, 2013). These initiatives enhanced the capacity of the teachers to use OER not only for pedagogical purposes, but also in developing self-learning material in the form of eContent for their students. As pointed out by Dutta (2016), the OER presented a wide range of possibilities for the teachers and learners of higher education system that could be materialised with different dimensions. The teachers of the participating universities contributed constructively and substantially to the eContent development exercises undertaken by the respective institutions in regional languages in a big way in spite of all issues and constraints discussed in the study. The availability of smart devices with the users also plays an important role in popularising the OER among them. The study by Mander (2015) reported that 69% of the web traffic in India is operating through mobile devices. Keeping this in view, the educational institutions need to ensure that the resources so created by them are easily accessible through the smart devices as well. The content creators need to ensure that the content so developed is compatible to use in different devices such as smart phone, i-pad, desktop, laptops, etc., at the same time. The efforts should be made to develop the OER in popular formats such as rtf, jpg, mp3, mp4, mpeg4, html, etc., that do not require proprietary applications to use them. Adoption of open source software for development of eContent could be a viable possibility other than the use of proprietary software for creation of such content.

Availability of an enabling OER policy in an institution has a long term bearing on the working of teachers and students. It would not only create a positive ambience supported by the management of the institution, but also help in developing an OER friendly culture in the institution that would result further in emergence of communities of OER users. Such a policy can be adopted at the national level to be followed by the educational institutions across the board. Periodical conduct of awareness and faculty development programmes in OER go a long way in enrooting this ethos in teaching and learning processes practiced by teachers as well as students. The current study focused on the need of a reward and recognition mechanism in the educational institutions that would transform the activity of use and creation of OER into an academic duty of the teachers as part of their institutional life. It was observed that the institutions under the study have created their own institutional repositories that cater to the content requirement of the users in local languages. The eContent generation and its uploading on such repositories should be made a regular feature so as to enrich the knowledge domain in vernacular languages. As pointed out by Pulist (2014), the instructional methodologies for different programmes could be designed in a way so that use and application of resources available on the web becomes an integral part of the pedagogical process. Such a state would lessen the burden of creation of additional content as part of OER upon teachers; rather the available resources could be used by the teachers for their teaching and learning processes in addition to extending the benefit of availability of such content to the general users other than the students.



As has been found from the study, the users needed to fit the OER in their teaching and learning by adaptation. In order to make optimal use of available quality educational resources, it is essential for the teachers to contextualise them in order to align them with the courses and syllabi, instructional methodology and language, and integrate them in the pedagogical system. This happened especially in cases where the content was not available in the local context or in vernacular languages. If more resources are created and shared as OER in regional languages, the availability of content will benefit the local users; therefore, more efforts need to be directed towards creating the content with dominance local context. The current study has indicated the lack of infrastructure in many cases as a major challenge. In order to harness the potential of OER, the institutions need to make reasonable investments in appropriate technologies for OER directed teaching and learning processes. While the educational institutions have a limited scope of efforts due to various constraints, the efforts of the governments to promote OER should focus on aggregation, adaptation and translation of the educational resources available elsewhere so as to fit them in different local contexts in line with the curriculum in vogue at different levels. Standardisation of the curriculum and syllabi at different educational levels would go a long way in fully utilising the capacity of OER.

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OER Policy Implementation and Use in Open and Distance Learning System: An Evaluative Study

Dear Participant,

This study attempts to analyse the effectiveness of the education and training interventions initiated by CEMCA to promote use and contribution of Open Educational Resources in different Open Universities in the South Asian Region. Your University is one among them. This questionnaire specifically seeks information on overall effectiveness of OER policy adoption by the ODL institutions; perception of faculty and learners towards use of OER and sharing of resources created by them; extent of awareness of faculty about licensing policy and sharing of resources created by them; extent of use, re-use and re-purposing of OER for teaching and learning; extent of use of OER in SLM development process; extent of sharing of resources created by the faculty; extent of launch of OER based programmes; and, issues and challenges in the implementation of OER in the ODL institutions. The questionnaire has been divided into 11 small parts addressing different areas of the study. Kindly spend about 20 minutes of your valuable time to respond to all the items of the questionnaire that will help us in studying the different factors in detail. Your participation is voluntary. All the information provided by you will be kept confidential and individual responses will not be identified/used for any purpose. The results will be presented in aggregate form only.

With regards,

► **Part-A: General Information**

(Please fill in the following details):

1. Your Gender: Male Female Other

2. Your Age:

Less than 25 years	<input type="checkbox"/>	46–50 years	<input type="checkbox"/>
25–30 years	<input type="checkbox"/>	51–55 years	<input type="checkbox"/>
31–35 years	<input type="checkbox"/>	56–60 years	<input type="checkbox"/>
36–40 years	<input type="checkbox"/>	61–65 years	<input type="checkbox"/>
41–45 years	<input type="checkbox"/>	More than 65 years.	<input type="checkbox"/>

3. Your Email id: _____

4. Your Designation: _____

5. Your Major Discipline area:

- a) Humanities and Arts
- b) Engineering and Technology
- c) Social Sciences (including Education and Law)
- d) Agriculture
- e) Management and Commerce
- f) Medical and Health Sciences
- g) Natural Sciences
- h) Other (Please specify): _____

► Part-B: OER Policy Adoption and Implementation

6. Please tick the following statements on the basis of your perception (SA = Strongly Agree, A = Agree, UD = Undecided, D = Disagree, and SD = Strongly Disagree)

Sr No	Statement	SA	A	UD	D	SD
a)	My institution attaches great value to use of OER for teaching and learning					
b)	Culture in my university is very favourable to use and share the OER					
c)	OER Policy of my University encourages me to use OER wherever possible					
d)	OER Policy of my university does not mandate me to contribute to OER					
e)	My university does not extend full infrastructural and technical support for use and contribution of OER					
f)	OER policy for my university does not encourage collaborative efforts on the part of faculty for creation of OER					
g)	Overall impact of adoption of OER Policy in my University is positive					

7. The OER budget provides for the following activities (Please tick all relevant):

- a) Physical infrastructure development/purchase
- b) Hardware development/purchase/upgrade
- c) Software development/purchase/upgrade
- d) Staff training and development



- e) eContent development/out-sourcing
- f) Revision of eContent
- g) Maintenance
- h) Other (please specify)_____

► Part-C: Perception of Faculty Towards OER

8. Please tick the following statements on the basis of your perception (SA = Strongly Agree, A = Agree, UD = Undecided, D = Disagree, and SD = Strongly Disagree)

Sr No	Statement	SA	A	UD	D	SD
a)	Having undergone the training workshops on OER, there is no positive change in my perception towards OER					
b)	It gives me pleasure if someone adopts/adapts my educational resources					
c)	Sharing OER enhances my personal and organisational reputation					
d)	OER can fulfill the pedagogical requirements in teaching to a great extent					
e)	OER helps to disseminate my ideas					
f)	OER does not promote collaboration and networking					
g)	I adopt OER for my teaching as they fulfill academic requirement of my students					
h)	OER saves my time					
i)	Use of OER enables the faculty to experiment with different teaching methods					
j)	Institutions should share educational resources for free with teachers, students and other institutions					
k)	Teachers should use the educational resources created by others					
l)	Students should not use the educational resources created by others for learning purpose					

► Part-D: Perception of Teachers about Learners Using OER

9. Please tick the following statements on the basis of your perception (SA = Strongly Agree, A = Agree, UD = Undecided, D = Disagree, and SD = Strongly Disagree)

Sr No	Statement	SA	A	UD	D	SD
a)	Use of the OER helps in improving the student performance					
b)	Students attach great value to use of OER.					
c)	OER use leads to equitable access to educational opportunities for students					
d)	Students are aware of the uses of OERs for their learning					
e)	Students are comfortable in finding relevant OERs					
f)	Students use the content available on the University Repository					
g)	Students use different OERs in addition to University Repositories for enriching their learning					
h)	Use of OER is not an effective way of engaging the learners					
i)	OER can provide additional support to marginalised learners					
j)	OER helps the students to search for the learning resources as per their learning style					
k)	Since the relevant OER are already suggested by the faculty, students save time on searching for them					
l)	OER enables the students to access the content produced by eminent subject experts					
m)	Use of the OER does not help the students to get deeper knowledge of the topic					
n)	OER enables the students to spend lesser money on reference books and therefore, is cost effective.					
o)	The learners are not happy if the material/reports and other content created by them are uploaded as OER					



10. In your opinion which of the OER platforms do the students use for learning?
- a) _____
- b) _____
- c) _____
11. In your opinion which search engine(s) do the students use for searching the OER?
- a) _____
- b) _____
- c) _____
12. In your opinion, for which of the activities do the students use OER?
- a) _____
- b) _____
- c) _____
13. In your opinion which type of online OER content is used by the students?
- a) _____
- b) _____
- c) _____

► Part-E: OER/Licensing Policy Awareness of Teachers

14. Please tick the following statements on the basis of your perception (VGE = To a Very Great Extent, GE = To a Great Extent, SE = To Some Extent, OLE = Only a Little Extent, NA = Not At All)

Sr No	Statement	VGE	GE	SE	OLE	NA
a)	Orientation workshops gave me clarity about different OER licensing policies in vogue					
b)	I have knowledge of OER Licensing Policy and Copyrights related to OER					
c)	I am afraid of losing my copyright on my intellectual property by sharing them					
d)	CC OER Licensing Policy helps the users in creating and contributing the material without losing their IPR					
e)	CC OER Licensing Policy helps in judiciously using OER created by others					
f)	I value the OER for use in teaching and learning process.					
g)	OER policy of my University acknowledges OER contribution of the faculty					

15. The following is/are the incentives/appreciation scheme/mechanism for OER functionaries? (Please tick all relevant):

- a) Appreciation letter
- b) Monetary incentive
- c) Purchase of additional books
- d) Preference given in faculty development schemes
- e) Weightage in Academic Performance Indicator (API) Score of teachers
- f) No provision
- g) Any other (please specify) _____

► Part-F: Use of OER for Teaching and Learning

16. Please tick the following statements on the basis of your perception (VGE = To a Very Great Extent, GE = To a Great Extent, SE = To Some Extent, OLE = Only a Little Extent, NA = Not At All)

Sr No	Statement	VGE	GE	SE	OLE	NA
a)	My experience in using the OER for Teaching purpose has been positive					
b)	Use of OER is inbuilt in the instructional design of the programmes in the University					
c)	I use Text files from the OER					
d)	I use Images files from the OER					
e)	I use Graphics from the OER					
f)	I use Data Tables/sheets from the OER					
g)	I use Audio files from the OER					
h)	I use Video files from the OER					
i)	I use presentations/demonstration files from the OER					
j)	I create online groups of students to share information with them					
k)	I create discussion form for the students					
l)	I am able to find OER on the web as per my requirement					
m)	I try to engage the students with the help of online activities like assignments, quizzes, etc.					
n)	Any other type of content used from the OER _____					



17. I provide the OER material to my learners in the following manner (please tick all relevant):
- Through LMS
 - Downloadable from web
 - Link to OER is provided to the learners
 - Through cloud storage device
 - Through pen drive/USB/CD
 - In print form
 - Other (please specify) _____
18. I use the OER in teaching for the following purposes (please tick all relevant):
- To substantiate the argument
 - To enrich the learning experience
 - To explain the topic/concept
 - As additional material
 - To provide self-evaluation exercise
 - To list additional reading resources
 - Other (please specify) _____

► Part-G: Use of OER for SLM Development

19. Please tick the following statements on the basis of your perception (VGE = To a Very Great Extent, GE = To a Great Extent, SE = To Some Extent, OLE = Only a Little Extent, NA = Not At All)

Sr No	Statement	VGE	GE	SE	OLE	NA
a)	I do not prefer to use OER for SLM development					
b)	I use OER for SLM in their original form					
c)	I use OER after re-purposing them					
d)	I curate the existing content for my SLM					
e)	I enjoy using OER for SLM development					
f)	I use Text files from OER					
g)	I use Images files from OER					
h)	I use Graphics from OER					
i)	I use Data Tables/sheets from OER					
j)	I use Audio files from OER					
k)	I use Video files from OER					
l)	I use Presentations/demonstration files from OER					
m)	Any other type of content used from OER _____					

20. I make use of OER in my SLM development process as under: (Please tick the relevant)
- In original form
 - After customisation
 - A mix of both the above
 - Not at all
21. I use the OER in SLM development for the following purposes (please tick all relevant):
- To substantiate the argument
 - To enrich the learning experience
 - To explain the topic/concept
 - As additional material
 - To provide self-evaluation exercise
 - To list additional reading resources
 - Not at all
22. Please mention number of courses/programmes for which you have developed SLM with the help of OER: No(s). _____
23. Extent of use of OER in the programmes already launched (please tick the relevant):
- Fully OER based
 - OER used as supplementary to the SLM in print
 - OER used as complimentary to the SLM in print
 - OER used for summative evaluation purposes
 - OER used for continuous evaluation
 - Other (Please specify): _____

Part-H: Sharing of resources created by the faculty

24. Please tick the following statements on the basis of your perception (VGE = To a Very Great Extent, GE = To a Great Extent, SE = To Some Extent, OLE = Only a Little Extent, NA = Not At All)

Sr No	Statement	VGE	GE	SE	OLE	NA
a)	I do not prefer to share the content developed by me					
b)	I enjoy sharing the content developed by me as OER					
c)	Reaction of my colleagues over my sharing the resources is not positive?					
d)	I share the newly created e-content as OER					
e)	I share the curated content as OER					

Contd.



Sr No	Statement	VGE	GE	SE	OLE	NA
f)	I share the tweaked/re-purposed/revised content as OER					
g)	I share Text files as OER					
h)	I share Images files as OER					
i)	I share Graphics as OER					
j)	I share Data Tables/sheets as OER					
k)	I share Audio files as OER					
l)	I share Video files as OER					
m)	I share resentations/demonstration files as OER					
n)	Any other type of content shared as OER _____					

25. How many times have you shared/contributed to the OER during the past 2 years? (Please tick relevant):

Sr No	Frequency	Original Content	Curated Content	Re-purposed content
a)	Less than 5 times			
b)	6 to 10 times			
c)	11 to 15 times			
d)	16 to 25 times			
e)	26 to 50 times			
f)	More than 50 times			

Part-I: Issues and Challenges

26. Please select any 5 issues and challenges that are important in your opinion for use, development and promotion of OER. Also rank them in order of priority: 1 will be **most important** and 5 will be **least important**. In case you feel any other important issue other than the listed here, you may add in the space given below and rank accordingly.

Sr No	Issues and challenges	Priority
a)	Lack of understanding of Intellectual Property licenses, Copyrights and Creative Commons licenses.	
b)	Lack of knowledge for using OER in my teaching and learning process	
c)	Lack of ICT skills required to create OER	
d)	Lack of recognition and rewards system for developing OER	
e)	Lack of financial resources with the institution to invest in OER	
f)	Lack of technological support to resolve day-to-day issues	
g)	Non-availability of OER for certain disciplines	
h)	Inability to find existing OER on topics of my interest	
i)	Incompatibility of OER to my university Learning Management System (LMS)	

Contd.

Sr No	Issues and challenges	Priority
j)	Poor technical infrastructure	
k)	Lack of faculty interest to engage in OER activities	
l)	Inadequate programme development facilities	
m)	Work overload on teachers	
n)	Lack of motivation/incentive/appreciation of teachers for OER engagement	
o)	Lack of training and capacity building opportunities in OER	
p)	Sharing of expertise for the re-learning of OER Practices with other faculty members	
q)	Indifferent attitude of management towards OER	
r)	Other (please specify): _____	

► Part-K: Suggestions

27. Please give suggestions for promotion of OER in your University (Please tick all relevant and add the ones not listed here):

- a) OER policy should adopt more flexible approach
- b) Infrastructure should be upgraded to suit the changing requirements for OER practices
- c) Effective technical support should be provided
- d) Incentive should be given to the faculty actively involved in OER activities
- e) Due weightage/credit should be given to the faculty for use/development and sharing OER
- f) OER should be integrated in the educational programmes through instruction design
- g) OER culture should be developed and encouraged in the University
- h) OER communities should be developed in the University
- i) Collaborative approach to development and use of OER should be developed
- j) More training and staff development opportunities should be provided
- k) More funds should be allocated for development of OER
- l) In-house facilities for OER development should be enhanced
- m) Monitoring mechanism for OER activities should be developed
- n) Quality assurance mechanism should be strengthened
- o) Other (please specify) _____

Thanks!

Q.1. How frequently do you use OER?

- What are your ideas behind use of OER?
- If not, what are the reasons?

Q.2. Have you ever created the learning resources as OER?

If yes, reflect upon your experiences when you share the resources.

- How many times and which type of material have you shared?
- If not, reasons/concerns that prevent you from doing so?

Q.3. Have you ever curated the learning resources as OER?

- If yes, Reflect upon your experiences when you share the resources
- How many times and which type of material have you shared?
- If not, reasons/concerns that prevent you from doing so?

Q.4. Have you ever shared the learning resources as OER?

- If yes, Reflect upon your experiences when you share the resources
- How many times and which type of material have you shared?
- If not, reasons/concerns that prevent you from doing so?

Q.5. Have you ever used OER for teaching and learning?

- If yes, what is your opinion on such usage as compared to authored content?
- If not, what are the reasons for not using the same in teaching and learning?

Q.6. How often do you take help of OER for development of SLM?

- What are the positive and negative factors of OER use for SLM?
- If not, what are the reasons, apprehensions/concerns for not using the same for SLM?

Q.7. Are you comfortable with the Creative Commons OER licensing policy?

- If yes, what do you like the most?
- If not, what are the reasons?

Q.8. Your University has adopted an OER policy

- What is your opinion on different aspects of the Policy?
- What are the advantages of the Policy?
- What are the limitations of the Policy?
- Given a chance, what modifications would you like to have in the OER policy?

Q.9. What are your reflections on usage and contribution to OER?

Q.10. Do you think that use of OER in ODL can influence existing pedagogical practices?

- If yes, how will it happen?
- If not, what are the apprehensions/possible reasons?

Q.11. Your University has created an OER Repository. Have you contributed to that?

- What is your opinion on having such a repository?
- How will it benefit the students and community at large?

Q.12. In your opinion, what is the impact of OER and institutional Repositories on learning experiences of students?

- How are the students getting benefitted?
- In case of your University, how many students would have been benefitted?
- If not benefitted, what could be the possible reasons?

Q.13. Have the initiatives of CEMCA benefited you in understanding different aspects of OER and provided you working knowledge:

- If yes, how?
- If not, what are the reasons?
- What has been the impact of these initiatives?
- How could the impact of the initiatives be enhanced?

Q.14. In your opinion, what are the barriers in promotion (usage and contribution) of OER in your context? Please share your reasons.

Interview Schedule

1. What are your reflections on capacity building and other initiatives taken by CEMCA for promotion of OER?
2. What is your opinion on promotion, development and use of OER?
3. Do you think OER will help the ODL system in enriching teaching and learning? If yes, how?
4. How can OSOU act as promotor of OER for better teaching and learning opportunities?
5. What changes do you visualise after adoption of OER in your institution?

**APPENDIX
D**

***Data on Econtent Uploaded
on The University Repository***

Name of your Institution: _____

Your Email ID: _____

Name of the University	Name of the Programme for which eContent has been developed	Level of the Programme (Certificate/ Diploma/ UG/ PG/ Research)	Discipline/Area of the programme	No. of Audio Programmes developed and uploaded	No. of Video programmes developed and uploaded	No. of courses for which SLM has been uploaded	Format of the SLM eContent (pdf, docs, xlsx, html, etc.)	No of courses for which work is in progress (SLM, audio, video)	No. of hits on the course eContent page of the website as on date	No. of downloads (SLM, Audio, Video)	Search methods/ Filters available	Feedback Mechanism	Types of issues	Redressal mechanism
								SLM= Audio= Video=	SLM= Audio= Video=	SLM= Audio= Video=				

Topic: *“OER Policy Implementation and Use in Open and Distance Learning System: An Evaluative Study”*

This research attempts to study the impact of interventions initiated by CEMCA for OER policy adoption, OER use, and contribution by faculty in the ODL system.

Procedure: In order to investigate the above research question, we have designed FGD schedule consisting of questions to investigate issues related to the topic. These questions will be asked in the Group and would be recorded. You can skip any question that you do not want to respond to or exit at any point of time during the discussion.

Potential risks and discomforts: There are no anticipated risks to your participation. When you feel discomfort at responding some questions, please feel free to ask for more clarification or to skip the question.

Potential Benefits to subject and/or to the society: You will not directly benefit from you participation in this research study. On the other hand, your participation in this research will help us and the academia in understanding the impact of interventions initiated by CEMCA. This may lead to formation of such policies and practices which will facilitate promotion and development of OER.

Length of time: This interview will be of about 30–60 minutes.

Type of participation: You participation is voluntary and refusal to participate will not result in any consequences or any loss of benefits that you otherwise are entitled to receive.

Rights of research Subjects: Your participation in the interview is completely voluntary and you have the right to refuse to participate or leave at any time. You can skip any question if you don't feel comfortable answering. You are free to ask questions for clarification of any doubt at any time. If you agree to participate in this study, your interview may be audio recorded. Your name shall not be disclosed at any point of time. The information provided by you shall not be used for any purpose other than the objectives of research. Thus, your confidentiality will be maintained throughout the research process and afterwards. When the results of the research are published or discussed in conferences, no information about you will be included that would reveal your identity. Sentences or questions you ask the interviewer to skip will not be used.

Opportunities to be informed of Results:

The results of the research will be available under Creative Commons license on CEMCA Website <http://www.cemca.org.in>

Identification of the researcher:

If you have any questions or concerns about the research, please feel free to contact the following:

Dr. S K Pulist
Principal Investigator,
C/o CEMCA 7/8 Sarv Priya Vihar
13/14 Sarv Priya Vihar New Delhi 110016
New Delhi 110016
<http://www.cemca.org.in>
Email: skpulist@gmail.com

Your signatures below indicate that you have read the above information and voluntarily agree to participate in this study.

Signature: _____

Name: _____

Date: _____

Place: _____

Brief Profile of the Author

S K Pulist, Ph.D. got his Master's Degree in the disciplines of Sociology, English Literature, Management Studies, and Distance Education. He acquired his Ph D Degree in Education Technology from JamiaMilliaIslamia, India, the topic being "*Pedagogical use of Web Based Technology in Teaching at Secondary and Senior Secondary Level Schools in Delhi: An Exploratory Study*". He is a Certified Trainer (a member of India Society for Training and Development). He possesses the PG Diploma in eLearning from IGNOU. His areas of interest are: eLearning and online education, Open Educational Resources, distance education, student retention, student support services, and training & development in ODL. He has completed a Study "*eLearning in Commonwealth Asia 2013*" published by Commonwealth Educational Media Centre for Asia (Commonwealth of Learning). He has co-edited a book entitled "*Education in the Digital World*" and has written over 80 articles/book chapters/research papers/reports etc. published in national and international journals. He is associated as co-editor with Indian Journal of Open Learning. He is involved with the ODL activities for the last over 24 years. Currently, he is working for IGNOU, New Delhi and is posted as Deputy Director in Student Evaluation Division. The author can be reached at [skpulist\[at\]ignou\[dot\]ac\[dot\]in](mailto:skpulist[at]ignou[dot]ac[dot]in)



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